INJURY, ILLNESS AND PREVENTION MANUAL

CITY OF BURBANK
PUBLIC SERVICE DEPARTMENT

INJURY & ILLNESS PREVENTION MANUAL

This safety manual has been reviewed and its contents agreed upon for respective sections by the following persons:

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Naresh Gupta
Safety Coordinator

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FOREWORD

An accident is defined as an unplanned event which frequently results in injury or damage and interrupts the completion of an activity and is invariably preceded by an unsafe act(s) and/or unsafe condition(s). Accidents are an unnecessary waste of both our human and economic resources. Though many accidents are due to unsafe conditions and can be minimized with periodic inspections and preventive maintenance, the majority of accidents are due to unsafe acts and human failure. It is the responsibility of every employee to comply with safety and health standards and all rules which are applicable to his own actions and conduct.

The prevention of accidents is one of the important parts of the job and each employee shall personally participate and not assume that the prevention of accidents is a job for the other person.

This manual has been prepared for the guidance and safety of all employees. Your cooperation is necessary at all times.

Any use of the masculine gender within this manual is to reflect both persons of the male and female gender and in no way implies any discriminatory meaning.

Ronald V. Stassi
General Manager

7/6/88, 1988

POLICY

The City of Burbank, Public Service Department, will administer a comprehensive and continuous occupational injury and illness prevention program for all employees. The health & safety of the employee, whether in the field, plant, or office takes precedence over all other concerns. The prevention of accidents, reduction in personal injuries and occupational illness, and to comply with all safety and health standards is the goal of the PSD's management.

PURPOSE

The purpose of this Injury and Illness Prevention Program (IIPP) Manual is to provide employees with a safe and healthful workplace and to assist in the prevention of accidents.

I. RESPONSIBILITY

The General Manager of the Public Service Department is responsible for overall management and administration of the Injury and Illness Prevention Program. The Safety Coordinator of PSD provides advice and recommendations on safety and health issues and assists in implementing the program.

Ia. SUPERVISOR'S RESPONSIBILITIES

The superintendent/supervisor or other persons directly in charge of any work is responsible for implementing the Injury and Illness Prevention Program in his/her work area. This will be accomplished by performing, but not limited to the following:

- being familiar with the PSD IIPP & other safety regulations related to his area of responsibility
- plan and lay out work methods and procedures
- provide a copy of PSD's IIPP & safety orientation to new employees
- conducting monthly workplace inspections/audits
- reporting hazardous conditions and near misses
- reporting injuries/accidents/emergencies
- conducting accident investigations
- identifying & correcting unsafe conditions
- conducting safety trainings & meetings
- insure compliance by insisting that all employees follow safe work practices and other elements of IIPP
- progressively discipline unsafe employees
- provide feed back on safety matters to Safety Office

Refer also to the general city Injury and Illness Prevention Program for supervisor's responsibilities.

Ib. EMPLOYEE'S RESPONSIBILITIES

A. Employees share with the department the responsibility for safety. They are responsible for their own safety, the safety of their fellow employees and the safety of the general public. Employees shall become familiar with and comply with their Injury and Illness Program and use all the protective devices which are provided for their use.

B. Perform work in a safe manner to prevent injury & property damage.

C. Report any unsafe/unhealthful conditions or defective tools or equipment to their supervisor without fear of reprisal.

D. Report all injuries and illnesses to your supervisor immediately.

E. Consult your supervisor before making any change in established safety procedures.

F. Will not attempt to do any work unless properly trained to do so. Before starting a job, each employee shall thoroughly understand the work to be done, his part in the work and the safety rules which apply. If in doubt, they shall call this to the attention of their supervisor.

Refer also to the general City Injury and Illness Prevention Program for employee's responsibilities.

II. EMPLOYEE COMPLIANCE

A. This manual shall be effective as of the date of issuance. Compliance by every employee is mandatory and is a requirement for employment.

B. Employees shall be reviewed for their safety performance and knowledge and this fact be recognized on their appraisals.

C. Governmental Codes, Statutes and Rules and Regulations shall be considered a part of this manual. If any conflict exists between these, governmental rules and regulations shall prevail.

D. If a difference arises in the application or interpretation of these rules, it shall be brought to the attention of the supervisor on the job. The difference should be resolved in accordance with the procedures in the MOU.

III. COMMUNICATION

This IIPP is designed to allow and encourage employees to communicate with various levels of management on safety and health matters. It is also a mechanism for management to keep employees informed regarding matters important to their health and safety.

The following existing methods for communicating health and safety information shall be utilized at PSD:

A. The Employee's Safety Committee will hold a regularly scheduled meeting each month in accordance with the City's AP V-1.

B. The Supervisor's Safety Committee will hold a regularly scheduled meeting each month in accordance with AP V-1.

C. The Safety Coordinator's Committee will hold a regularly scheduled meeting each month in accordance with the City of Burbank Administrative Procedure V-10.

D. Safety matters will be discussed regularly at the General Manager large staff and weekly staff meetings.

E. There will be tailgate meetings weekly, or every ten days, for the field crews. Safety meetings for others in all divisions shall be held at least monthly.

F. Safety Publications/Posters - Communication from employees to supervisors and/or the Safety Coordinator about unsafe or unhealthful conditions is encouraged and maybe verbal or written, whichever the employee chooses. Employees may choose to bring safety matters to their Employee Safety Committee, Supervisor Safety Committee or Safety Coordinator Committee and may remain anonymous.

NO EMPLOYEE WILL BE RETALIATED AGAINST FOR

REPORTING HAZARDS OR POTENTIAL HAZARDS OR

FOR MAKING SUGGESTIONS RELATED TO SAFETY

TO SUPERVISOR/MANAGEMENT

IV. INSPECTIONS

To maintain a safe and healthful workplace we must have a way to identify hazards. To fullfill that cause, each supervisor or his designee will conduct an inspection of his/her workplace to identify unsafe work practices and conditions. The inspection shall be conducted regularly each month.

Other than monthly inspections, some construction vehicles, equipment, machinery, and tools require pre-trip or pre-use inspections. These inspections should be done as often as the supervisor feels is necessary.

The inspection checklist provided by the Safety Section shall be used as guidelines and to document the regular monthly safety inspection.

The Safety Section will conduct regular annual safety inspections of the entire department.

V. INJURY AND ILLNESS INVESTIGATION

The policy of the City is that all occupational injuries and illnesses shall be investigated in accordance with the City's Administrative Procedures V-3. The purpose of the investigation is to determine the facts surrounding the accident or injury so that it can be prevented in the future.

The supervisor of the employee involved shall investigate the accident and Form B610-37C, "Incident Analysis Report", Supervisor's Statement & Investigation Report shall be used for documentation. Employee report of injury Form B610-37 shall be completed by the employee as soon as possible.

Refer also to the general City Injury & Illness Prevention Manual. Vehicle accidents are to be investigated in accordance with the City's Administrative Procedure.

VI. CORRECTION OF UNSAFE OR UNHEALTHY CONDITIONS

Whenever an unsafe or unhealthy condition, practice or procedure is observed, discovered or reported, the supervisor of the effected work area will take appropriate corrective measures in a timely manner, based upon the severity of the hazard. The employees will be informed of the hazard and interim protective measures taken until the hazard is corrected. Employees will not enter in an imminent hazard area, without appropriate protective equipment, training, and the prior specific approval of the supervisor if the timely corrective action is not taken, it will be brought to the attention of the program administrator (GMPSD).

VII. TRAINING

The General Manager of the Public Service Department or his designee shall assure that the supervisors receive the training to familiarize them with the safety and health hazards to which their employees may be exposed.

Supervisors are responsible for ensuring that the employees under their supervision receive training on general work place safety as well as on safety and health issues specific to their job. The training shall be arranged/coordinated with the PSD Safety Coordinator.

VIII. RECORD KEEPING

All of the work area, Safety Inspections, Safety Meetings and Fire Extinguisher Inspections shall be kept in the safety office. The supervisor of the affected area shall also keep a copy of these inspections and meetings. The records will be maintained for at least one year.

The safety office shall also keep the records of safety and health training for at least one year.

Refer also to the City's Injury and Illness Program.

SECTION 1 - GENERAL RULES

101 Application

a) These rules represent minimum requirements and are only intended to cover average conditions. Employees shall use good judgment in dealing with conditions not covered in these rules.

b) If employees are called upon to perform work which he considers hazardous and not properly protected, he shall bring the matter to the attention of their supervisor before starting the work.

c) When an employee of one section is assigned to work on equipment or within facilities subject to the jurisdiction of another section, the employee shall follow the rules of the latter section.

102 Education

In addition to any current safety, accident prevention, educational or training program, each superintendent or supervisor shall make certain that all employees under their jurisdiction are instructed and advised concerning the applicable rules and their application.

103 Taking Chances

a) Before commencing any work that may be hazardous, care shall be taken to establish a safe procedure. Where more than one employee is engaged in the same job, all employees shall understand the procedures to be followed (tailboard conference). Under no circumstances shall safety be sacrificed for speed.

b) Employees shall not attempt work for which they are not technically, mentally and physically qualified.

c) Employees shall not engage in practical jokes or "horseplay," or encourage others to take unnecessary chances.

104 Intoxicants and Drugs

a) Use or possession of intoxicants or drugs by employees during their working hours is forbidden. Any violation may be cause for dismissal.

b) Employees reporting for duty while under the influence of intoxicants or drugs will not be allowed to assume their duties.

105 Smoking

a) Employees shall not smoke in or near areas where flammable liquids, explosives or gases are stored.

b) Employees shall not smoke in battery rooms, confined spaces, storerooms or any area where combustible materials are stored.

c) Lighted matches, any form of tobacco or other burning substances shall be placed in a proper receptacle or otherwise disposed of safely.

d) Absence of "No Smoking" signs shall not excuse smoking in dangerous areas.

e) Employees must leave matches and cigarette lighters behind before entering an area in which explosives or combustibles are stored.

f) Smoking is not permitted in areas indicated as danger zones or areas closed to smoking by federal, state, county or city officers.

106 Reporting Employee Injuries

a) Injuries, no matter how slight, shall be reported to the person in charge immediately.

b) All minor injuries shall be properly treated and a report made to the employee's supervisor.

c) When the services of a physician are necessary, a physician designated by the City shall be used whenever possible. Such injuries shall be reported to the Division manager and safety office immediately.

d) In case of serious or fatal accidents to employees, paramedics shall be called promptly. The accident shall be reported immediately to the General Manager, worker's compensation coordinator and safety office.

e) At least one person shall stay with the injured person, when possible, to render first aid.

f) Sufficient, accurate information must be given so that those responding to the call will know what is needed to care for the injured and how to reach the scene of the accident.

g) If an ambulance transports an injured employee, the supervisor or the designated employee, if available, shall accompany the injured person in the ambulance. Refer to Administrative Procedure V-3 for more details.

107 Reporting Department Vehicle Accidents

a) The driver shall report accurately and immediately every accident to a vehicle in their possession. Additional reports shall be made to the Police.

b) The driver shall not discuss or argue the causes or results of an accident with other parties but shall secure all pertinent facts and information. They shall answer questions when asked by proper authority but under no circumstances shall he admit fault or negligence or sign any statement for anyone except proper City representatives.

c) Should the other driver demand immediate action, they shall be referred to the employee's supervisor.

d) The drivers, when involved in an accident, shall stop and give their name and address, and their employer's name and address. They shall also secure the name and address of others involved in the accident and of witnesses to the accident.

e) If any person is injured as the result of a vehicle accident, employees shall see that necessary emergency aid is provided.

f) If a vehicle or other property is damaged and the owner is not present, attempt to locate the owner, inform of the accident and identify yourself. If the owner cannot be located, leave a notice with your name and address in a conspicuous place or in the damaged property, and report the accident to the Police Department.

g) Note the time and exact location of the accident.

108 Injury to Non-Employees

a) All accidents which may involve the Department, resulting in personal injuries to, or death of, non-employees shall be reported immediately by the first employee having knowledge thereof by the fastest means of communication to the Department Manager.

b) First aid may be rendered if necessary but do not assume responsibility for an injury. Do not obligate the City to pay for ambulance, doctor or hospital services. Do not make statements admitting liability or indicating that the City will make settlement. Do not discuss the accident with anyone outside of authorized personnel.

c) Attempt to ascertain if any non-employee has been injured, and report even the slightest injury or suspicion thereof.

d) Obtain the names and addresses of all witnesses or possible witnesses before they leave the scene.

e) Secure all data from the operator's license of the driver of each vehicle involved and the name and address of each passenger.

f) Secure all data from the registration certificate of each vehicle, including registered owner, license number, make, type and year.

g) Identify yourself to all non-employees involved in the accident and make your operator's license and the Department vehicle registration certificate available for inspection.

h) Note the time and exact location of the accident.

i) Avoid discussing the accident and make no admissions of responsibility to anyone except authorized City representatives. Necessary data given to a law enforcement officer should be given in private.

109 Job Briefing

Prior to starting any job or day's work, the supervisor or employee in charge will call the entire crew together for a conference or "Job Briefing." This conference shall accomplish the following:

a) Each employee will understand the purpose of the job.

b) Each employee will understand what they are to do.

c) Each employee will understand what the other members of the crew are to do.

d) Each employee will understand the intended manner of carrying on the job.

e) Each employee will understand the hazards or trouble spots involved and will know how the employee in charge is proposing to overcome such problems.

f) The employee in charge will encourage questions, comments and suggestions by the crew members. The briefing will continue until all crew members understand the job at hand.

g) If, during the course of the work, changes in procedure become necessary, the crew members affected will be called together and the change properly explained.

110 Limitations on Access to Vicinity of Department Facilities

Visitors or uninstructed employee shall be accompanied by a qualified employee in stations and in or around Department properties.

111 Reporting Hazardous Conditions

a) When an employee observes a hazardous condition that may cause injury or property damage or interfere with services, regardless of any City department in which the condition exists, they shall report it promptly to a proper authority and when necessary guard it.

b) Employees who receive a report of any hazardous emergency condition shall obtain the name of the informant, the exact location and the nature of the problem. They shall immediately refer this information to the person having responsibility for such matters.

112 Removing Safeguards

a) Safeguards will not be removed during normal operations.

b) Before normal operation is permitted to resume, any regular safeguards that have been removed will be replaced, or suitable temporary safeguards will be provided.

113 Guards

a) No guard shall be removed from any machine or piece of equipment except to perform required maintenance.

b) Guards removed to perform maintenance operations shall be replaced immediately and the machine shall not be operated while the guards are removed (except for maintenance certification).

c) A power press shall be locked out and the ram blocked while adjusting the die work or removing obstacles.

d) Approved devices shall be used to keep the hands and fingers out of the point of operation of power operated equipment.

e) A jig, clamp, or vise shall be used to hold the work piece on a drill press table when there is any danger of the work being caught by the drill.

f) Metal chips shall not be removed from the machine beds or cutting areas with the hands.

g) Mechanical aids shall be used when handling heavy face plates, chucks or work parts.

114 Hold Cards and Safety Tags--Lockout/Blockout Procedures

a) Before starting any clearing, repairing, servicing or adjusting work on any circuit, machine, belting, shafting or other apparatus employees shall assure themselves that the machine is deenergized and a standard Hold Card, safety tag, or lockout device is properly attached to the apparatus control.

b) No switch, governor, valve, throttle or other device used to put a circuit or equipment into service shall be operated while a Hold Card or similar device is attached to it.

c) A Hold Card, safety tag, or similar device, that has been placed for the protection of employees shall be removed only by authorization of the person in whose name it was placed and then only after the work has been completed and all employees and tools are in the clear.

d) Each employee in charge of work on any equipment shall have their Hold Card or similar device secured to the apparatus control.

115 Warnings

Warning signs shall be heeded. Persons seen in a dangerous situation shall be warned without being startled. Employees not required to be near potentially dangerous places shall keep away from them.

116 Housekeeping

Work locations, store rooms, personnel service rooms, passageways, vehicles and both the inside and outside of buildings shall be kept clean and orderly at all times. A clear walkway of at least 24" width and 6'-8" headroom shall be maintained.

a) Combustible materials, such as oil-soaked rags, waste and shavings shall be kept in approved metal containers with metal lids. Containers shall be emptied as soon as practicable.

b) Used rags shall be kept in metal or metal-lined bins having metal covers.

c) Permanent floors and platforms shall be kept free of dangerous projections or obstructions and shall be maintained reasonably free of oil, grease or water. Where the type of operation produces slippery conditions, mats, grates, cleats or other methods shall be used to reduce the hazard from slipping.

d) Stairways, aisles, permanent roadways, walkways and material storage areas in yards shall be kept reasonably clear and free from obstructions, depressions and debris.

e) Materials and supplies shall be stored in an orderly manner so as to prevent their falling or spreading and to eliminate tripping and stumbling hazards.

f) No clothing shall be allowed to hang on walls, behind doors or in the space in back of switchboards. No matches shall be left in clothes placed in lockers. Rubbish and unused clothing shall not be allowed to accumulate in lockers.

g) Paper and other combustible materials shall not be allowed to accumulate and weeds or other rank vegetation shall not be permitted to grow in or around the area of substations, pole yards, buildings, oil tanks or other structures.

h) Not more than one gallon of kerosene and cleaning agents of the "Stoddard" solvent class shall be kept in any open containers. The container shall be provided with a proper cover and be kept securely covered except when in actual use.

117 Fire Protection and Control

a) Employees are expected to correct immediately or report for correction any fire hazards.

b) Employees shall be familiar with both the location and the operation of all fire protective equipment in the vicinity of their work area.

c) Fire extinguishers shall be located in plain sight and readily accessible. Nothing must cover or block access to extinguishers.

d) Designated persons from the General Plant shall, at not less than monthly intervals, inspect all fire extinguishers in their area of on their vehicles to assure that:

1. Extinguishers are in their designated place and readily accessible.

2. Gauges indicate adequate operating pressure.

3. Seals are unbroken.

4. Physical damage, corrosion or other impairments are not evident.

e) Fire extinguishers shall be serviced only by authorized personnel.

f) Any employee who uses extinguisher shall see that it is replaced with a fully charged and sealed unit. Extinguishers having broken or missing seals will be considered empty.

g) All employees shall know the classes of fire, their burning characteristics and the proper extinguishing agent to be used. (Class "A" fires involve normal combustibles such as wood and paper. Extinguishing agents include water, soda-acid and multipurpose dry chemical). (Class "B" fires involve oils and flammable liquids. Extinguishing agents include CO2 and dry chemical.) (Class "C" fires involve electrical equipment. Extinguishing agents include CO2 and dry chemical.)

h) Employees shall not enter confined spaces after using CO2 extinguisher until the area has been thoroughly ventilated.

i) Except for wheeled type equipment, all fire extinguisher shall be mounted and identified so that they are readily accessible.

j) Carbon Tetrachloride fire extinguishers shall not be used and if found in the work place, the supervisor in charge should be notified.

118 Clothing

a) Employees shall wear clothing and shoes which are approved for the work they are doing.

b) City-supplied 100% cotton shirts with full length sleeves rolled down and buttoned and an electrical safety had shall be worn when working on or near live parts and while on poles or structures.

c) Loose, dangling watch chains, key chains or unnecessary metal of any kind shall not be worn when working on or near energized parts.

d) Employees shall wear gloves suitable for the work. Rubber glove protectors shall not be used as work gloves.

e) Loose-fitting clothing, dangling bracelets, and ties shall not be worn while operating or working around power-driven machines.

f) Refer to Rule #402 for clothing in vehicular traffic conditions. Refer to Rule #616 for "protective clothing" while switching for Dispatch personnel

119 Eye and Face Protection

ANSI-approved safety glasses or full cover goggles and/or face shield shall be worn where there is a risk of eye injury such as punctures, abrasions, contusions or burns form hazardous substances, light rays or flying particles. Eye protection shall be used, but not limited to the following work activities:

a) Drilling or chipping stone, brick, concrete, paint, pipe coatings or metal.

b) Power grinding, buffing or wire brushing.

c) Flame welding, cutting or burning. (Approved colored lenses shall be used.)

d) Hand drilling or sawing of overhead object.

e) Use of powered tools such as drills, saws, sanders, etc.

f) Gunniting, pouring hot lead, hot compounds or the use of other hot or injurious substances.

g) Handling acids, caustics, chlorines, ammonia or similar liquids or gases, except when approved complete head coverings are worn. (Chemical goggles are necessary.)

h) Brush Chippers.

i) Thermite (cadweld) type welders.

j) Any time when there is a possibility of electrical arc or flash.

k) Any other danger of injury to the eyes, or at the direction of the supervisor. Safety glasses shall be worn under face shield.

l) Wearing of contact lenses is prohibited in working environments having harmful exposure to materials or light flashes or where respirators are required.

120 Head Protection

a) Employees whose duties expose them to head injury shall wear approved head protection at all times.

b) All other employees must wear head protection when they:

1. Are within designated hard hat areas.

2. Work within other sections that require head protection.

3. Are so instructed by their superintendent or supervisor.

c) Electric Division employees must wear dielectric head protection. Refer to Rule #701 (i) for more details.

121 Foot Protection

ANSI-approved steel toed shoes and/or line mechanic steel-toed boots shall be worn by employees who are exposed to foot injuries from hot, corrosive or poisonous substances, falling objects, or crushing or penetrating actions which may cause injuries or who are required to work in abnormally wet locations. Foot protection shall also be used in other areas as deemed necessary by supervisors.

122 Safety Belts, Life Lines, Railings, Etc.

a) Only approved-type safety belts shall be worn wherever required to be used by this safety manual, by the supervisor or by any other regulation and shall be labeled meeting Class I requirements.

b) Where lifelines are used they shall have a minimum breaking strength of 2650 pounds.

c) It is the duty of the employees to inspect each safety belt or any other safety device, furnished by the Department. Every time they use it, they will use only those that are in good condition approved and supplied.

d) Guardrails shall be provided on all open sides of unenclosed roof openings, open sides of landings, balconies, platforms, runways, ramps, or working levels more than 30 inches above the floor, ground or other working areas. Guardrails shall be of 42" in height with a middle rain in the center.

123 Hand Tools

a) Employees will use only tools that are suitable for the job and in good repair.

b) Proper handles will be fitted to tools where required.

c) Tools and other materials must not be left lying in elevated positions unless protected from falling.

d) Cutting tools will be kept properly sharpened.

e) Metallic tapes, metallic rules, hammers with metal handles, screwdrivers or knives with metal continuing through the handle will not be used near exposed, energized electrical equipment or carried by anyone working with electricity.

f) Compressed air must not be used to clean clothing or hair. It must not be directed toward an employee for any reason.

g) Compressed air may not be used for cleaning purposes except when reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.

h) Defective tools shall be tagged to prevent their use or they shall be removed from the job site.

i) Tools shall not be thrown from place to place or from person to person. Tools that must be raised or lowered from one elevation to another shall be placed in tool buckets or firmly attached to hand lines.

j) Where applicable, chisels, drills, punches, ground rods and pipes shall be held with suitable holders or tongs while being struck.

k) The insulation on hand tools shall not be depended upon to protect users from shock.

l) Tools shall not be left lying around where they may cause a person to trip or stumble.

m) A sharp edged or cutting tool shall be properly stored or kept in suitable guards.

n) Pipe shall not be used to extend a wrench handle for added leverage unless the wrench was designed for such use.

o) When working on or above open grating, a canvas or other suitable covering shall be used to cover the grating to prevent tools or parts from dropping to a lower level, or the danger area shall be barricaded or guarded.

p) Avoid using tools on moving machinery; stop the machine before making adjustments.

q) Check the clearance at the work place to make sure there is sufficient space if the tool should slip.

r) Have a good support underfoot, so that there is no hazard of slipping, stumbling, or falling.

s) Protect hands by wearing gloves in confined places, except when using hammers. Do not wear rings.

t) Carry sharp or pointed tools in covers, or be sure they are pointed away from the body in case of a fall.

u) Wear eye protection when using impact tools on hard, brittle material.

v) After using tools, wipe them clean and put them away, thus keeping the work place orderly.

w) Do not lay tools at top of stepladders or on other places from which they could fall on someone below.

x) Learn, and use, the right way to work all hand tools.

y) Use tools made of non-sparking material where fire is a hazard.

z) Adjustable wrenches should be placed on the nut with the adjustable jaw toward the user. The wrench shall then be pulled, not pushed. If the space in which the work is being done makes it impracticable to pull, then the wrench shall be turned over and pushed.

z) The use of mechanical aids to increase the tension or pull on chain tongs is prohibited.

aa) Files shall have securely fitted substantial handles.

bb) Files and screwdrivers shall not be used as punches or pry bars.

cc) When using a knife or other sharp pointed tool always cut away from the body.

dd) The work piece shall be secured and the hands placed to minimize the hazard should the tool or the work slip.

124 Portable Electric Tools

a) The non-current carrying metal parts of portable electric tools such as drills, saws and grinders shall be effectively grounded when connected to a power source unless:

The tool is an approved double insulated type

b) All powered tools shall be examined prior to use to insure general serviceability and the presence of all applicable safety devices. The electric cord and electric components shall be given a thorough examination.

c) Powered tools shall be used only within their capability and shall be operated in accordance with the instructions of the manufacturer.

d) All tools shall be kept in good repair and shall be disconnected form the power source while repairs are being made.

e) Electrical tools shall not be used where there is a hazard of flammable vapors, gases or dusts.

f) Because cords on the floor create a danger of stumbling or tripping, suspend them over aisles or work areas, where possible.

g) Avoid hanging an extension cord over nails or other sharp edges, allowing it to become kinked, or leaving it where a vehicle may run over it.

h) Protect the cord against contact with oil, hot surfaces, and chemicals and store in dry place.

i) Wear appropriate eye, ear and face protection while using electric hand tools.

l) Do not under any circumstances allow a flexible shaft of a portable power tool to form a loop, as this will make a not, jerking the tool out of the operator's hand.

m) When using a portable grinder, always wear goggles and keep out of line with the wheel.

n) When using portable grinders or buffers on toxic material such as lead, zinc, or brass, use adequate respiratory protection.

o) Do not wear loose clothing when using portable power tools.

p) Do not insert nails or other objects in the ventilating openings to stop the fan while tightening the chuck or performing any other operation.

q) An extension cord shall never be used as a hand line to raise or lower a tool.

r) The guard on a portable circular power-saw shall not be removed, or tied back, to prevent its operation.

125 Pneumatic Tools

a) Compressed air and compressed air tools shall be used with caution.

b) Pneumatic tools shall never be pointed at another person.

c) Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.

d) Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

e) The manufacturer's safe operating pressures for hoses, pipes, valves, filters and other fittings shall not be exceeded.

f) The use of hoses for hoisting or lower tools shall not be permitted.

g) Before making adjustments or changing air tools, unless equipped with quick-change connectors, the air shall be shut off at the air supply valve ahead of the hose. The hose shall be bled at the tool before breaking the connection.

h) Pneumatic tools shall be operated only by competent persons who have been trained in their use.

i) The use of metal-reinforced hose shall be avoided near energized equipment. When this type of hose must be used, proper clearances shall be maintained.

The same danger of tripping or stumbling is presented by an air hose as by an electric cord. Persons or material accidentally striking the hose may unbalance the operator or cause the tool to fall from an elevated location. Lying on the ground, an air hose should be protected against vehicles and pedestrians. It is preferable, however, for the hose to be suspended over aisles and work areas.

a) In operating portable air drills or reamers, do not wear gloves or loose, bulky or torn clothing.

b) Keep tools in good condition and be especially careful that bits are ground correctly with uniform flutes and proper clearance.

c) Place the machine straight in the hole; if tipped, the bit is almost certain to stick.

d) Have two men operate the larger tapping machines.

e) Install and maintain safety setscrews on all shaft collars.

f) Be particularly careful to see that all shaft collars are kept tight while tapping machines are in operation or when they are being carried to and from jobs.

g) When not in use tools shall be placed in a manner to prevent injury in case of accidental operation.

h) Proper personal protective equipment such as gloves, ear plugs, toe guards, goggles shall be worn while operating tampers, jackhammers, chippers, buffers, grinders, or pavement breakers. Helpers shall be protected as the hazard requires.

i) Hose shall not be kinked to shut off the air, except in case of emergency.

j) The air shall be shut off and bled from the tool when it is necessary to leave the tool unattended.

k) Exhaust ports shall be guarded so that dust cannot be blown into the eyes of other workmen.

126 Powder-Actuated Tools

a) Only those employees who are qualified by training in their operation and carry valid operators cards for the tool used, be permitted to operate powder-actuated tools.

b) Explosive charges shall be carried and transported in approved and locked containers.

c) Operators and assistants using these tools shall be safeguarded by means of eye protection (safety eye goggles and safety glasses with face shields) and a safety hat.

d) Prior to use, the operator shall insure that the protective shield is properly attached to the tool, that it is clean, moving parts operate freely and the barrel is free from obstructions.

e) A defective tool shall be tagged and immediately removed from service.

f) The material upon which the tool is to be used shall be examined before work is started for the purpose of determining its suitability and eliminating the possibility of hazard to the operator and others.

g) Powder-actuated tools shall not be used in an explosive or flammable atmosphere.

h) Tools shall not be loaded until just prior to the intended firing.

i) Only cartridges with an explosive charge adequate for the job and with proper penetration shall be used.

j) Tools and cartridges shall never be left unattended.

k) Tools shall never be pointed at any person.

l) In case of a misfire, the operator shall hold the tool in place for 30 seconds or in accordance with the instructions set forth in the manufacturer's instructions.

m) Tools shall be inspected, cleaned, and stored in a safe place at the end of each working period.

n) Tools shall be fired in a position at right angles to the surface unless a special shield adequate to control flying particles at the required angle is provided and used.

o) Tools shall not be used to drive pins or studs into hardened steel, cast iron, or similar material. When driving studs in concrete, a distance of not less than 8 times the diameter of the stud shall be maintained between the stud and the nearest edge.

p) The explosive charge shall be adequate for the job without causing excessive penetration.

q) Tools shall be examined for foreign material after each shot and shall not be reused unless in proper firing condition.

r) A legible sign with at least one inch letters reading "Powder-Actuated Tool in Use on This Project" shall be posted in plain sight at all projects where such tools are used.

127 Safe Supports and Scaffolds

a) No employee, or any material or equipment, shall be supported or permitted to be supported on any portion of a tree, pole structure, scaffold, ladder, walkway, or other elevated structure, crane or derrick, etc., without its first being determined that such support is adequately strong and properly secured in place.

b) Employees shall check all scaffolding prior to use to insure it is of sufficient strength and rigidity to safely support the weight of persons and material to which it will be subjected.

c) Employees shall not use a scaffold platform 7-1/2' and more in height unless there is a standard guardrail, with midrail and toeboard, to provide adequate employee protection.

d) Scaffold planks shall extend over their end supports by not less than 6 inches (unless cleated) nor more than 12 inches. Plank shall not overlap and unsupported end of another plank.

e) Scaffolds shall not be moved without first removing all loose tools, materials and equipment resting on the scaffold deck.

f) All stationary scaffold legs shall rest on bare plates available from the manufacturer and when scaffolds are resting on earth, the base plates shall rest on and be secured to the equivalent of a 2" x 10" x 10" wooden plate. Movable scaffolds shall have the casters or wheels locked to prevent movement.

g) Construction details of scaffolding shall comply with applicable state safety orders.

h) The safe load limit of the scaffold shall be known by the employees. Excessive weight or sudden loading is prohibited.

i) The loading and safety of swinging scaffolds shall be inspected at least once on each job, and when close to the ground. The first such inspection shall be made before starting to use scaffolds. They shall also be inspected in the work position prior to each day's work. If subjected to severe accidental stress, scaffolds shall be inspected in place to ascertain whether other rigging will be necessary to lower them to the ground for complete inspection.

j) Swinging scaffolds shall be secured against excessive motion while in use.

k) Only two men shall use a swinging scaffold. Each man shall be provided with a 5/8-inch manila safety rope or equivalent that is securely fastened at the roof, is between the hangers, and long enough to reach the ground.

l) Ropes, when used as a fall or safety line, shall be protected against flame, hot objects, chemicals, or other substances capable of damaging the fibers. If damage has occurred, the rope shall be removed from service.

m) Only safe means of access, like ladders, shall be used to gain access to the scaffolds work platform.

128 Ladders

a) Wooden ladders shall not be painted so as to obscure a defect in the wood. Only a clear, non-conductive finish shall be used.

b) All ladders shall be inspected before each use and periodically thereafter, and shall be maintained in good usable condition at all times. Ladders with weakened, broken or missing steps, broken side rails, or other defects shall be tagged and removed from service.

c) Employees shall face the ladder and use both hands when ascending or descending. Materials and tools shall be raised and lowered by a hand line.

d) Portable metal ladders shall not be used in the vicinity of energized electric circuits. All such ladders must be legibly marked "Caution--Not To Be Used Around Electrical Equipment."

e) Ladders shall not be placed in front of doors opening toward the ladder unless the door is open, locked or guarded.

f) Employees shall not stand on the top platform of a stepladder unless the ladder is designed for this purpose.

g) Care shall be used in placing ladders. The bottom of the ladder should be away from the wall a distance equal to one-fourth the length of the ladder from the ground to the point of support.

h) Employees shall not stand on the top three rungs of a single ladder or on the top two steps of a step ladder.

i) When work requires reaching to one side, the center of the body must not extend beyond the side rails. If in certain unavailable conditions work requires that the employee extends beyond side rails then the employee shall belt off to a ladder and the ladder shall be tied off to a fixed object.

j) Ladders shall not be used as scaffold platforms or for uses other than what they are intended for.

k) Stepladders shall not be used as straight ladders.

l) Stepladder legs shall be fully spread when the ladder is in use.

m) No ladder shall be used to gain access to a roof, unless the top of the ladder extends at least three feet above the next roof, landing, platform, etc.

n) The anti-slip bases/safety shoes shall be used on all ladders to prevent the ladder from slipping. All ladders shall be tied, blocked, or otherwise secured to prevent against displacement.

o) Step ladders longer than 20' in length shall not be used.

p) The length of single portable ladders or individual sections of ladders shall not exceed 30 feet. Two section ladders shall not exceed 48 feet in length and over two section ladders shall not exceed 60 feet in length and shall not be used.

q) Ladders shall be approved by appropriate ANSI standards.

129 Material Handling

a) When lifting, take a firm grip; get a good footing; place the feet a comfortable distance apart; bend the knees, keep the back straight; and lift with leg muscles.

b) Obtain help when needed. Use cranes or hoists for lifting heavy loads. Keep out from under suspended loads.

c) Use gloves or hand pads as required when handling materials.

d) Never carry a load that obstructs the vision.

e) When two or more persons are carrying an object, each employee should face the direction in which the object is being carried. When raising or lowering an object, it shall be done on a prearranged signal.

f) Mechanical lifting devices shall be used on heavy or bulky objects when lifting or handling hazards require.

g) Hand lines and/or suitable containers shall be used when manually raising or lowering tools or material which cannot be safely carried from one level to another.

h) Gloves or other hand protection shall be used in handling rough or sharp material or containers that present a hazard of personal injury and provided rotating machinery is not involved.

i) Hand-operated trucks shall be loaded with the material secured either by position or suitable ties to prevent tipping or falling.

j) In extensive handling of cement, or under dusty conditions, goggles and respirators shall be worn. Clothing shall be close-fit at the wrist, neck and ankles.

130 Drums

a) Drums shall be slid endwise down skids. A par-buckle shall be used when only one person is to lift a filled or partly filled drum with the aid of a hoist.

b) A proper bung wrench shall be used.

c) Barrel dolly shall be used for transporting drums.

131 Pipe and Pole Handling

a) Hands shall be kept away from slings and chokers that are being removed by the crane form under loads. Employees shall not stand in line of pull, as the sling or choker may suddenly pull loose and whip.

b) Riding on pipe or poles is forbidden.

c) Safety bars, wire, standards, or other safety devices shall be used to hold the load or pile in place.

d) Binder chains shall not be thrown over the load until employees on the opposite side have moved to a safe location. The slack shall be taken out of the chain before the load is finally secured.

e) A long-handled bolt cutter shall be used in cutting binder wires, and employee shall stand on the ground and in the clear.

f) Pole and pip piles shall be kept as level as practicable to prevent rollbacks, and employees shall not stand between the pipes or poles.

g) While transporting poles, someone shall be placed so that the pole load is visible to him during transit. Any shifting of the load shall be reported to the driver at once. The load shall be resecured before proceeding.

132 Store and Tool Rooms

a) Projecting nails in crates, crating, or barrels shall be removed or bent immediately after opening.

b) Truck skids and runways shall be secured as soon as they are in position. Adequate dockboards for the loading operation shall be used.

c) Bins shall not be filled or material protrude to the point where contents can spill out or will create other hazards.

d) Incoming tools shall be carefully inspected and any needed repairs or adjustments shall be made before the tool is reissued.

e) Electrical tools shall be checked by an electrician if there is any question of an unsafe electrical condition.

f) Personal protective equipment such as goggles or respirators shall be cleaned and sterilized before being reissued.

133 Packing, Unpacking, Storage, Loading and Unloading of Materials

a) Nail points, ends of wires or bands should not be left exposed when packing or unpacking boxes, crates, barrels or other containers.

b) Nails will be removed from loose lumber or the points bent down before disposing of the lumber.

c) Articles will be stored in a way that prevents persons from coming in contact with sharp edges and points.

d) Particular care will be taken when packing or unpacking glassware, porcelain or any object which may have sharp edges.

e) Do not handle loads from the street side of a vehicle if it can be avoided.

134 Compressed Gases

a) Portable gas cylinders or containers shall be handled with extreme care and shall be stored in a suitable, separate, well-ventilated location, properly secured in a vertical position with valve cap in place. One-ton chlorine cylinders shall be stored horizontally.

b) Portable gas cylinders or containers shall not be stored in direct sunlight nor exposed to heat, sparks or flames.

c) Oil or grease shall not be allowed to come in contact with valves, regulators or any other parts of oxygen cylinders or apparatus.

d) Oxygen cylinders in storage must be separated from fuel gas cylinders containing hydrogen, butane, propane, acetylene, etc., a minimum distance of 20 feet. This distance may be reduced only if a properly designated and constructed fire-resistant barrier at least six feet.

e) All connections to piping, regulators and other appliances must be kept tight to prevent leakage. Use only soap and water solution or equivalent to make leak tests; never use open flame. Keep valves tightly closed when cylinders are not in use.

f) Compressed gases from a cylinder or cylinder manifold shall not be used unless an approved pressure regulating device is installed to control the pressure.

g) The recessed top of cylinders shall not be used as a place for tools.

h) No attempt shall be made to mix gases in a cylinder or to transfer gas from one cylinder to another.

i) Fittings and regulators used for one gas shall not be exchanged or used for another gas nor shall connections be forced into position.

j) A sign, "Danger - No Smoking, Matches or Open Flame," shall be conspicuously posted in rooms or at entrances to gas storage areas.

k) Cylinder valves shall be protected by the cap while not in service and the proper wrenches used when making connections.

l) Cylinders shall not be placed where they might become part of an electrical circuit or within five feet of an electrical outlet.

m) Before the regulator is removed from a cylinder, the valve shall be closed and all pressure released.

n) A leaking cylinder shall not be used. Should a leak develop, self-contained breathing apparatus shall be used before entering the area. Such cylinders shall be taken outdoors away from sources of ignition.

o) Chlorine containers shall be stored and properly secured in a cool place and protected against moisture. Every precaution shall be taken to prevent accidental discharge of the gas, and protective equipment shall be readily available. Cylinders shall never be used or stored near flammable materials. Should a chlorine leak develop, the cylinder shall be placed so that the "gas" escapes. (An ammonia swab may be used to detect leaks.) Water shall not be applied to chlorine leaks.

p) Welding hose shall be identified by the use of a color code and used only for the designated gas.

q) A suitable cradle or skip box shall be used when handling cylinders by cranes or hoists.

r) Oxygen shall be released for service from the cylinder only through the proper regulator. The regulator shall be closed and the main valve opened slowly to prevent damage to the regulator. The valve shall be closed and the oxygen released from the regulator before removing the regulator from the cylinder. The hand wheel on cylinder valves shall be operated only by hand.

s) Oxygen shall never be used as a substitute for compressed air.

t) Acetylene cylinders shall be used, stored or transported in the vertical position.

u) The special wrench used for the operation of the acetylene cylinder valve shall remain on the valve stem while the cylinder is in service.

v) Chlorine cylinders shall be stored so that a minimum of handling is required.

w) Chlorine cylinder valves shall be opened slowly. Do not use a wrench longer than 6 inches to operate a valve.

x) Fittings, connections, reducing valves, and gauges shall be for chlorine service only. The threads and fittings shall be maintained in good condition at all times.

y) Approved type chlorine canister gas masks and/or approved self-contained respirators shall be kept at locations accessible to chlorine facilities.

z) When chlorine is being absorbed in a liquid, special care shall be taken to prevent material being drawn back into the cylinder as the cylinder becomes empty.

When leaks occur that cannot be controlled by valves or valve adjustment, the chlorine shall be transferred to available cylinders, and whenever practicable, the cylinder shall be removed to an open area where the liberation of the gas will not be a hazard to personnel. In a leak where liquid is escaping, the cylinder should be moved so that only gas escapes. Personnel shall remain in areas above the leak and to windward. The supervisor shall be notified and the appropriate chlorine emergency procedure initiated.

135 Flammable Liquids

a) Flammable liquids shall be stored in approved locations and handled and transported only in approved containers.

b) When flammable liquids are poured or pumped from one metal container to another, metal contact will be maintained between the containers.

c) Flammable liquids will not be disposed of into sewers or drains not specifically designated for that purpose.

d) All flammable liquid containers must be clearly labeled to identify contents.

e) Flammable liquids may be transferred only after both containers have been grounded to prevent static sparks.

f) Warning and No Smoking signs will be conspicuously posted where flammable liquids are stored or used.

g) Flammable liquids, transported on vehicles, must be properly secured and carried outside of the driver or passenger compartments.

h) No employee is to handle, transfer, load or unload cryogenic liquids unless he has been trained and is authorized to do so.

i) Flammable liquids such as gasoline, benzene, naptha, lacquer thinner, etc., shall not be used for cleaning purposes.

j) All solvents shall be kept in approved, properly labeled containers. Gasoline, benzene, naptha, lacquer thinner and other solvents of this class shall be handled and dispensed only in U.L. approved, properly labeled (yellow letters) red safety cans.

k) In any building, except one provided for their storage, flammable liquids such as gasoline, benzene, naptha, lacquer thinner, etc., shall be limited to five gallons, in U.L. approved, properly labeled containers.

l) Strict adherence shall be paid to "No Smoking" within 25 feet and "Stop Your Motor" signs at fuel dispensing locations.

136 Gasoline

a) Gasoline shall be stored, handled and transported only in approved containers and extreme care shall be used at all times to prevent ignition. Employees shall familiarize themselves with and observe ordinances relative to such storage.

b) When pouring or pumping gasoline from one container into another, metal contact shall be maintained between the pouring and receiving containers.

c) Smoking shall not be allowed within 25 feet of the gasoline.

d) Refueling of the vehicles should be done manually.

137 Trenching - Excavating

Prior to operating an excavation trench, determine whether underground installations, such as sewer, water, fuel, electric lines, telephone lines, etc., will be encountered and if so where such underground installations are located.

a) Excavation work shall be under the immediate supervision of someone with the authority to modify the shoring system or work methods, as necessary, to provide greater safety.

b) Repairs or mechanical adjustments to trenching machines shall not be made while the machine is in operation. The buckets or conveyor shall be stopped for the removal of obstructions.

c) No employee in a trench shall work closer than 6 feet to a digger in operation. The machine shall be faced when the employee is working in the trench within 12 feet of the equipment. Note: Cave-ins are more likely to occur when working close to the digger or when placing shoring and bracing.

d) In no case shall the excavated material be placed closer than two feet from the edge of excavation five feet or more in depth. For lesser depths, at least a one-foot clearance shall be maintained.

e) Excavations shall be inspected following a rain and before the resumption of work for possible earth weakening and cave-ins.

f) When a clamshell is being used to excavate a trench, employees in the trench shall keep at least two sets of shoring and bracing between them and the working bucket.

g) When a clamshell is being used to excavate a vault or manhole, employee shall not be permitted to be in the excavation while the clamshell is working. When the operator's view of the bucket is obstructed, a signal person shall be provided to give necessary directions for safe operations.

h) Shoring and bracing shall be checked frequently, especially in heavy traffic areas where vibration may loosen the bracing.

i) Bracing shall be installed from the top down and removed from the bottom up.

j) Hard hats shall be worn when there is danger of falling material.

k) Employees who enter excavations five feet or more in depth shall be protected by a system of shoring, sloping of ground, benching, or other approved means. Protection for employees who work in excavations less than five feet in depth shall also be protected when examination of a qualified person indicates that hazardous ground movement may be expected.

l) All trenches and excavations four feet or more in depth shall be ascended and descended with ladders. There shall be a ladder no more than 25 feet away from any employee occupying the trench and it shall extend at least three feet out of the excavation.

138 Breaking Pressure Connections

Before removing a valve bonnet, or stuffing ox gland, breaking a flanged joint, removing manhole covers, or other pressure connection, the bolts, nuts, or other fasteners shall first be loosened but not removed and special care exercised to make sure that pressure is released or does not exist.

139 Barriers and Barricade Tape

Barricade tape shall be used for all other hazards on Department property, such as:

a) Open grating and manholes

b) Blowing steam leads or draining hot water

c) Escaping gas or working on fuel lines

d) Acid cleaning

e) Enclosing "NO SMOKING" areas

f) Surrounding areas exposed to hydrogen during generator purging

g) All other non-electric hazards

Window Cleaning

a) Safety harnesses shall be inspected by the window washer at the start of work every day and once every month by the supervisor. The safety harness or any part thereof shall be replaced immediately if defects are found that make the safe use questionable.

b) Window anchors shall be examined each time before they are used.

c) One terminal of the harness shall be attached to the window anchor before climbing out and until the worker is back inside the windowsill. Both shall be attached before work is started.

d) Weather conditions that the window washer feels affect the safety shall be reported by the window washer to the supervisor prior to starting work.

e) All work locations where the window cleaner is exposed to falling objects or other unsafe conditions shall be reported to the supervisor.

f) Tools, while not in use, shall be secured against falling.

SECTION 2 - HEALTH AND ENVIRONMENTAL CONTROL

This section deals with general health areas and depicts some of the control methods which the employee must use for his protection. The general principles outlines in this section are applicable to all work activities. However, specific control measures applicable to a specific work activity are covered in the section dealing with that work activity.

Work processes and work locations can present health hazards to the employee. Because most of these health hazards do not pose an immediate danger, they are frequently not given the attention which is necessary.

In order for the employees to be fully protected, they must become as knowledgeable as possible of the potential health hazards. Thorough understanding of the principles of this section is essential.

Identifying labels and applicable precautionary measures are normally found with all chemicals and hazardous materials. These instructions should be read and understood by the employee. Applicable safety and health precautions must be taken.

201 Confined Spaces

This section prescribes the minimum standards for preventing employee exposure to confined space hazards within such spaces as silos, tanks, vats, vessels, boilers, compartments, ducts, sewers, pipelines, vaults, manholes, bins, tubs, pits, etc.

I. Definitions

A. Confined spaces: A space that is:

1. Large enough that an employee can bodily enter and perform assigned work, and

2. Has limited or restricted means of entry or exit, and

3. Is not designed for continuous employee occupancy.

B. Hazardous atmosphere: An atmosphere that may expose an employee to the risk of death, incapacitation, imparement of ability to self-rescue, injury or illness from one or more of the following:

1. Flammable gas vapor, or mist in excess of 10 percent of its lower flammable limit (LFL).

2. Airborne combustible dust at a concentration that meets or exceeds its LFL.

3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.

4. Atmospheric concentration of any substance which could result in employee exposure in excess of its dose or permissible exposure limit (PEL).

5. Any other atmospheric condition that is immediately dangerous to life and health (IDLH)

C. Non-permit confined space: A space which meets the definition of confined space in 1(A.) above and doesn't contain or with respect to atmospheric hazards, doesn't have the potential to contain any hazard capable of causing death or serious physical harm.

D. Permit required confined space: A space which meets the definition of confined space in 1(A.) above and has one or more of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere as defined above in 1(B.).

2. Contains a material that has the potential for engulfing an entrant.

3. Has an internal configuration that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.

4. Contains any other recognized serious safety or health hazard.

II. Training of Personnel

Personnel who work in the vicinity of confined spaces shall be made aware of the hazards associated with confined spaces during orientation. Personnel who are required to work in a confined space or, are responsible for supervising and/or involved in rescue shall have additional training in the following areas:

1. How to recognize the hazards they may face

2. Use of applicable respirators and other personal protective equipment

3. First aid and CPR procedures

4. Lockout procedures

5. Use of the testing equipment

6. Rescue and training drills designed to maintain proficiency shall be given at intervals of one to six months depending upon work involved and approval of the safety division

7. Entry permit system

8. Safe work practices

9. The training shall be provided to each affected employee before assigning work in a confined space and before there is a change in assigned duties or before there is a change in confined space operations. A certificate of the completion of training with name of the employee and the trainer shall be provided to each employee. Records of the training shall be kept within the Department.

III. Pre-entry Operating Procedures

A. The supervisor or authorized employee shall develop a work plan consistant with the potential hazard of the confined space. This can be accomplished by:

1. Determining the type of work, hazard involved, and other factors that may effect the safety of employees

2. Review the confined space procedures with the crew and the hazards involved for the work to be done

3. Ensure that the employees are trained in confined space procedures

4. Arrange all tools, equipment, personal protective equipment and communication equipment required for the job

5. Set up traffic control and visible devices for proper traffic flow and employee safety

6. Maintain a safe work area around the confined space entry to prevent any tool or object from falling to protect employees working in the space

B. Entry Permit

No employee shall enter into any confined space (as described in 1A.) until a check list on Entry Permit in Appendix "A" has been completed and an Entry Permit issued by a qualified person except in an emergency situation involving a rescue. In that case, Rescue Procedures outlined in Section VI shall be followed. For the purpose of these procedures, the first-line supervisor or his authorized employee shall be considered a qualified person.

The supervisor or a qualified person shall be responsible for securing the permit and shall sign off when the following areas and actions have been reviewed and confirmed:

1. Location and description of the confined space
2. The purpose of entry
3. The date and duration of entry
4. Names of the entrants and standby persons
5. Hazards that may be encountered
6. Complete isolation check list
    a. Blanking and/or disconnecting
    b. Electrical lockout
    c. Mechanical lockout
7. Special clothing and equipment
    a. Personal protective equipment and clothing
    b. Safety harness and/or lines
    c. Tools approved for use in accordance with the Hazardous Location Classification
    d. Approved electrical equipment, communication equipment
8. Atmosphere test readings and initials of employees performing the tests
    a. Oxygen level
    b. Flammability and/or explosive levels
    c. Toxic substance levels
9. Atmospheric monitoring while work is being performed
10. Personnel training and complete understanding of the hazards
11. The rescue and emergency procedures and location of first aid equipment

12. The communication procedures used by entrants and attendants

13. Cable condition, electrical equipment condition in the manhole

14. Overall condition of the manhole or other confined space

This permit shall be valid for one shift only. The permit shall be updated for each shift with the same requirements. In addition, gas test shall be performed before each entry, recorded on the permit. The testing shall be continuous for the duration of the work. The permit shall be posted close to work area or shall be available with supervisor at job site. NOTE: See sample permit in Appendix A. The sample permit should serve as a guide and not be limited to the areas mentioned.

C. First Aid

There shall always be someone readily available in the work area whose training is current in cardiopulmonary resuscitation (CPR) and basic first aid procedures.

Employees shall be aware of the location of the nearest first aid equipment, and how to obtain emergency assistance and medical attention. An adequate supply of first aid equipment shall be within easy access of the confined space.

D. Labeling and Posting

Appropriate warning signs shall be posted at the work location. Emergency procedures, emergency phone numbers and emergency medical services shall be posted conspicuously within the immediate area of the confined space or shall be kept readily available at job site.

E. Requirements for Special Equipment/Tools

Hand tools shall be kept clean and in good repair. Portable electric tools, equipment, and lighting shall be approved and be equipped with a ground fault circuit interrupter. All equipment that may be used in a flammable atmosphere shall be approved as explosion-proof for the atmosphere involved by a recognized testing laboratory.

F. Rescue Equipment

The proper rescue equipment shall be available and in good working order at work area, for immediate use.

G. Isolate/Lockout/Hold Tag

The isolation procedures shall be specified for each type of confined space. All lines that carry flammable, injurious, or incapacitating substances into the space shall be disconnected, blinded, or blocked off to prevent the possibility of dangerous air contamination and/or oxygen deficiency within the space. This shall be done in a way as to prevent an inadvertent reconnection. All breakers to electrical drives shall be locked out and tagged.
For electric manhole or confined enclosure with continuous primary

circuits, qualified person shall inform Dispatch Center, and give manhole number or letter. He shall get a hold on all the circuits which are in the manhole he is working in. The information given to Dispatch Center will be recorded and placed by radio for standby person also, in case of an emergency:

1. A hold will be issued on any piece of equipment controlled by Dispatcher upon request. This will guarantee the holder that whatever the status of the equipment was at the time the hold was issued, it will remain as such. No switching, breaker closing or opening will take place until the hold has been released. Except in the event of relay operation, at which time the holder will be notified first. For potential confined space in power plant isolate/lockout/hold tag procedures in Appendix B (Boiler Entry Procedures) and Appendix C (Power Plant equipment clearance) shall also be utilized.

H. Atmospheric Testing and Monitoring

Entry into a confined space is prohibited until initial testing of the atmosphere has been done from the outside and Entry Permit is issued. The tests performed shall include those for oxygen content, flammability and toxic materials. Any necessary additional tests will be selected and performed to the satisfaction of the supervisor/qualified person.

1. Before entry, the internal atmosphere shall be tested from outside. This testing is to be done before opening the space by probing through the cover

2. Once the space is opened sample the atmosphere again at the top, middle and bottom of the confined space

3. The results of all confined space pre-entry tests shall be recorded on the Department manhole/vault/boiler entry permit

4. If hazardous atmosphere (as defined in 1(B.) is found, an employee shall not enter the space. Leave the space immediately and follow the procedure in item V

IV. Entry Procedures

A. IF HAZARDOUS ATMOSPHERE (AS DEFINED IN "I(B)") DOESN'T EXIST WITHIN THE SPACE AS DEMONSTRATED BY THE TESTS PERFORMED AND THERE IS NO POTENTIAL OF DEVELOPMENT OF HAZARDOUS ATMOSPHERE OR ANY OTHER DANGER IN THE SPACE, ENTRY INTO THE SPACE MAY PROCEED SUBJECT TO THE FOLLOWING PROVISIONS:

1. The space shall be considered as "Non Permit" confined space, but the record of the atmospheric testing performed shall be recorded and maintained

2. Testing of the atmosphere inside the space shall be continuous to ensure that the development of hazardous atmosphere doesn't occur

3. The mechanical ventilation system shall be used to purge the space before entry. If natural draft is used for ventilation, make sure it is considerable.

4. Means of direct communication shall be provided

5. Provision shall be made to permit ready ingress and egress

6. Upon entry into the space, the overall condition of the space shall be checked for any visible hazard

7. If the hazardous atmosphere or any other hazardous condition is detected after the entry:

   a. Each employee shall leave the space immediately and follow procedures in item V

   b. The space shall be evaluated to determine how the hazardous atmosphere developed

B. IF HAZARDOUS ATMOSPHERE (AS DEFINED IN 1(B) DOES NOT EXIST WITHIN THE SPACE AS DEMONSTRATED BY THE TESTS PERFORMED BUT THERE IS A POTENTIAL OF DEVELOPMENT OF HAZARDOUS ATMOSPHERE, ENTRY INTO THE SPACE MAY PROCEED SUBJECT TO THE FOLLOWING PROVISIONS.

1. The space shall be considered as a permit required confined space and an entry permit shall be obtained before entry

2. Wear personal protective equipment as required

3. At all times, there shall be a standby person stationed outside the space with direct means of communication with employees inside. All other rescue equipment shall be available for immediate use.

4. Testing of the atmosphere inside the space shall be continuous to ensure that the development of hazardous atmosphere does not occur

5. The mechanical ventilation system shall be used to purge the space and be kept running for the duration of work if there is a potential for the development of a hazardous atmosphere.

6. Appropriate approved respirator (SCBA or supplied line respirator with five minutes escape bottle) shall be available close to the entry of the space for immediate use

7. If entry must be made through a top opening, a retrieval system shall be in place for lifting employees out of the space. A safety harness of the type that suspends a person upright shall be donned before entry in the space and shall be kept on until employee exits the space

8. Provisions shall be made to permit ready entry and exit

9. Upon entry into the space, the overall condition of the space shall be checked. IF IT IS AN ELECTRICAL MANHOLE the condition of the energized cables and overall condition of the manhole shall be checked from the outside of the manhole before entering into the manhole. Upon entry, the cable temperature inspection and electrical equipment inspection shall also be performed before the start of the work. Results of the inspection shall be recorded on the entry permit

10. After completing items 1 to 9, and making sure the results of the inspections performed in items 4 and 9 are normal, the work within the space may proceed upon approval of the supervisor or his authorized representative.

11. If the results of the inspection performed in items 4 or 9 are not normal, immediately leave the space and follow procedures in V (items 1 through 5)

C. HAZARDOUS ATMOSPHERE (AS DEFINED IN 1(B) DOES EXIST WITHIN THE SPACE, AS DEMONSTRATED BY THE TESTS PERFORMED OR ANY OTHER KNOWN HAZARD WHICH EXISTS WITHIN THE SPACE.

1. Do not enter into the space. Follow procedures in Item V (Items 1 to 5)

V. Do not enter into a space if a flammable, combustible or toxic gas is found or any other condition which is immediately dangerous to life and health. Follow these procedures:

1. Note percentage of gas concentration. Remove the detector probe

2. Carefully replace the inner lid or cover (prevent any sparking)

3. Check the immediate vicinity for workmen who may be working in other substructures. Warn them of the condition

4. Notify the officer or Dispatch Center of the condition found and ask them to call the Fire Department (Police Department, if needed) and the City Safety Officer/Coordinator. Further course of action shall be determined by department supervisor and safety officer/coordinator

5. All encounters with combustible or toxic conditions shall require a written report. Reports will be permanently on file and will include everything on the entry permit, along with the date and the time the corrective action was completed. The copy of the report shall be sent to the department Safety Coordinator

VI . EMERGENCY PROCEDURES

A. For the rescue of employees, inside the confined space, a standby employee as required in Item IV B (3) may enter the space, but only in case of emergency, and only after alerting

at least one additional employee of his intent to enter the space. Put on the safety harness and (if not already on), SCBA or supplied line respirator with five (5) minute escape bottle. Ask the additional employee to do the following and then enter for rescue if it is safe:

1. Notify either the office, Fire Dept. or Dispatch Center.

2. Ask for help

3. Give location

4. Nature of emergency, if it can be determined (if electrical, have Dispatch Center open all circuits in manhole until rescue is complete)

5. **Do not enter into a confined space for rescue if additional employee is not available. Wait until additional help arrives or becomes available.**

6.

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B. Employee shall get into his safety harness with safety line attached.

C. Put on respirator

D. Drop down the safety line of the tripod

E. Wait for additional person before entering manhole

F. An effective means of communication between employees inside the confined space and a standby employee shall be provided and used whenever the use of respiratory protective equipment is required, or whenever employees inside a confined space are out of sight of the standby employee.

202 Noise

When employees are subjected to sound levels exceeding those listed in the following table, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, appropriate personal protective equipment shall be provided and used to reduce sound levels within permissible limits.

Permissible Noise Exposures

Duration per Day/Hours	Sound Level dba Slow Response
8	90
6 92	
4	95
3	97
2	100
1-1/2	102
1	105
1/2	110
1/4 or less	115

Hearing Conservation Program

A Hearing Conservation Program shall be administered, whenever employee noise exposure equals or exceeds an eight hour time weighted average (TWA) sound level of 85 decibles (dba). The program shall include the following but not be limited to:

Monitoring

When information indicates that employee's exposure may equal or exceed an 8 hours time weight average of 85 dba, measurement for employees who may be exposed at or above that level shall be obtained by area monitoring or personal monitoring. The employee shall be notified if exposed to the action level of 85 dba or above.

Audiometric Testing Program

i) Audiometric testing shall be provided by the City to every employee whose exposure equals or exceeds the action level (85 dba) and shall be performed by a licensed or certified audiologist.

ii) A valid baseline audiogram shall be established for each employee exposed at action level 85 dba or above.

iii) Testing to establish baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise.

iv) Audiometric tests shall be made available to employees within six months of employee's first exposure at or above action level (85 dba) and shall be repeated annually thereafter.

v) If a comparison of the annual audiogram to the baseline audiogram indicates a change in hearing threshold relative to the baseline audiogram of an average of 10 db or more at 2,000-3,000 and 4,000 Hz, in either ear, the employee shall be informed of this fact, in writing within 21 days of the determination. Appropriate action shall be taken to avoid further loss.

Recordkeeping

An accurate record of all employee exposure measurements shall be maintained.

i) Noise exposure measurement records shall be retained for two years.

ii) Audiometric test records shall be retained for the duration of the affected employee's employment.

Hearing Protectors

Employees shall wear hearing protectors when exposed to an 8-hour time weighted average of 85 dba or greater. Supervisors shall make sure that employees wear hearing protectors.

Training Program

Supervisor shall make sure that each employee is informed of the effect of noise on hearing; the purpose of hearing protectors, the advantages and disadvantages, selection, fitting, use and care of hearing protectors.

203 Toxic and Corrosive Substances

a) Before handling toxic, infectious or corrosive substances such as acids, solvents, leads, PCBs, chlorine, etc., employees shall thoroughly familiarize themselves with the hazards involved and utilize all necessary precautions, protective devices and/or equipment.

b) Only proper containers plainly marked as to content and hazard warning will be used for storage of hazardous materials.

c) Employees shall not handle food, tobacco, etc., with such toxic substances on their hands.

d) Eyewash and emergency shower stations shall be located adjacent to corrosive substance handling areas. Their proper operation should be checked prior to handling corrosives.

e) Hazard Communication Program (Worker's Right to Know) written by Clayton Environmental Consultants, dated August 8, 1987, for the City of Burbank, shall be followed for details.

f) "Handling and emergency response" procedures for PCBs, written by Chemical Safety Associates, Inc. for City of Burbank PSD, shall be followed.

204 Protection from Dusts, Fumes, Vapors or Gases

When effective engineering controls are not feasible to eliminate harmful quantities of dusts, fumes, vapors or gases, every employee in the zone of contamination must be protected in a manner which will insure a supply of clean air. If they cannot be so protected then approved respiratory equipment shall be used.

205 Lights

a) Only an approved explosion-proof electric flashlight or an approved explosion-proof extension cord and fixture may be used near gasoline, escaping gas or other flammable vapors or when entering a room or enclosure suspected of containing gas.

b) Basements, cellars and other dark areas shall not be entered without proper light; the use of matches or other open flame is strictly forbidden.

c) Where natural illumination is not sufficient, artificial lighting shall be used. Temporary lighting (excepting battery-powered) shall be protected with approved guards.

206 Asbestos

The eight-hour time weighted average concentration of airborne asbestos fibers to which any employee may be exposed, shall not exceed 0.2 fibers longer than five micrometers per cubic centimeter of air. The average concentration over a sampling period of 30 minutes to which employees are exposed shall not exceed one fiber, per cubic centimeter of air. While performing any asbestos-related work, "Procedures for Working With Asbestos," written by CTL Environmental Services, Inc., shall be followed. A copy can be obtained from the Safety Officer or the Safety Coordinator.

Monitoring and Record Keeping

a) To determine the concentration of asbestos fibers within the breathing zone of employees whose exposure to airborne asbestos may exceed and eight-hour TWA concentration of 0.1 fiber longer than five micrometers per cubic centimeter, the supervisor of the section shall arrange to get the air samples, within the breathing zone of employee and testing.

b) Monitoring shall be repeated at least once every six months.

Record Keeping

The records of the above monitoring shall be maintained for at least 30 years.

Medical Surveillance

A comprehensive asbestos medical shall be given to the employees engaged in asbestos-related work where exposure to airborne asbestos, without regard to the use of respiratory protective equipment has been determined to exceed or may be expected to exceed an 8-hour time weighted average (TWA) concentration of 0.1 fiber, longer than 5 micrometers per cubic centimeter.

a) The examination shall be conducted within 30 calendar days of the employee's initial assignment and annually thereafter.

b) Records of the above medicals shall be maintained for at least 30 years.

Registration Requirement

a) If employees are required to perform asbestos-related work involving 100 sq. ft. or more of surface area of asbestos-containing material in a year, registration with the Division of Safety and Health is required and renewal every year thereafter.

b) For asbestos-related work involving less than 100 sq. ft. of surface area of asbestos-containing material, reporting shall be made with the division of Occupational Safety and Health, as a carcinogen user. Cal/OSHA Form 183 shall be used for the purpose.

207 Respirators

a) When it is clearly impractical to remove dangerous/harmful air contamination by ventilation systems, or when relatively brief exposure is needed, respiratory equipment, approved for the purpose, shall be provided to the employees and employees exposed to such hazards shall use approved respiratory equipment.

b) Operating procedures written by CTL Environmental Services Inc., governing the selection and use of the respirator which include the procedure for selection, training, cleaning, sanitizing, inspection and maintenance procedures, shall be followed.

c) The user of a respirator shall follow the manufacturer's instructions or the specific instructions of supervisor.

d) Only employees trained in their use shall use respirators.

e) Contact lenses shall not be worn when using respirator.

f) When conditions (like facial hairs) prevent a good gas-tight face seal, respirator shall not be used as protective equipment.

208 Selection and Use of Respirator

Selection of the respirator shall be based upon the procedures covered in CTL Environmental Services Inc. procedures; however, the following approved respirators shall be used, but not limited to, depending upon the conditions, type and amount of exposure of the employee.

For Paint Shop

a) When spraying paints in approved spray booth or any other well-ventilated area, use organic vapor respirator TC-23C-123, TC-23C-88 or TC-23C-435.

b) When painting inside the building, enclosed areas (not a confined space) where ventilation is not adequate, use supplied air Type C, continuous flow respirator TC-19C-15A (not good for conditions which are immediately dangerous for life and health)

c) Full face mask self-contained breathing apparatus for confined spaces and other IDLH and unknown conditions.

d) Dust mask when exposed to nuisance dust only.

Carpenter Shop

Dust mask when working on wood-working machines.

Fab/Welding Shop

During normal operation, when adequate ventilation is in place, use of respirator is not required; however, respirator shall be selected and used whenever required by the supervisor.

Power Plant

a) NIOSH-approved Ray-Cal powered air purifying, hood and helmet type, with Cartridge #TC-23C-482 can be used for organic vapors and asbestos exposures but not for chlorine and IDLH conditions.

b) NIOSH approved Ray-Cal, powered air purifying hood and helmet-type, with Cartridge #TC-23-647 can be used for chlorine, organic vapor, sulfur dioxide, hydrogen chlorine and HPA (asbestos) exposures in normal conditions but not for IDLH conditions.

c) SCBA (self-contained breathing apparatus) shall be used for emergencies, IDLH conditions and other unknown conditions.

Water Section

a) Half-face cartridge Type #TC-23C-88, TC-23C-435 or 3M Type TC-23C-123 can be used for organic vapor exposure in normal conditions.

b) SCBA shall be used for emergencies, IDLH conditions and other unknown conditions.

Electrical Equipment, Distribution and Power Supply Control

a) Half-face cartridge Type TC-23C-435 or 88 or 3M disposable-type TC-23C-123 organic vapor respirator shall be used when working with solvents but not for IDLH conditions.

b) SCBA (Survivair combination self-contained breathing apparatus -- HIP PAC) shall be used for confined spaces and any other IDLH unknown conditions.

Dispatch Center

SCBA shall be used in emergencies, IDLH conditions and other unknown conditions.

209 Changing and Charging Batteries

a) Battery charging installations shall be located in an area designated for that purpose.

b) The area shall be adequately ventilated that will prevent concentration of flammable gases and harmful concentration of mist from the electrolyte.

c) Carbon filter, siphon, hand-operated bulb or pump shall be used for dispensing electrolyte or acid.

d) Mechanical lifting and material handling devices shall be provided for handling batteries.

e) Smoking shall be prohibited in the charging area and "No Smoking" signs shall be posted.

f) Sparks or electric arcs shall be prevented from charging area when racks are used to support the batteries. They shall be made of materials non-conductive to spark generation.

g) When charging batteries the vent caps shall be kept firmly in place to avoid electrolyte spray.

h) Facilities for quick drenching or flushing of the eyes and body shall be provided.

i) When taking specific gravity readings and open end of the hydrometer shall be covered with an acid-resistant material while moving it from battery to battery.

j) Vent caps shall be in place when batteries are being moved.

k) Where corrosive liquids are used or handled means shall be provided to neutralize or dispose of spills.

l) Approved eye protection shall be used in battery charging area.

SECTION 3 - MOTOR VEHICLE OPERATIONS

301 Scope

Rules in this section apply whenever an employee is operating Department-owned motor vehicles or whenever the employee is being compensated for the use of a vehicle on a mileage basis.

302 Knowledge and Compliance with Laws

Drivers of vehicles are expected to be familiar with and obey all state vehicle codes, local traffic rules and ordinances, traffic control signs, posted speed limits, parking restrictions, in addition to Department rules and regulations governing vehicle operation.

303 License and Permit Requirements

a) Drivers of vehicles must have in their possession at all times a valid California Driver's License appropriate for the class of vehicle being driven in accordance with DMV requirements.

b) Any change in the status of an employee's California Driver's License must be reported immediately to the supervisor.

c) AP Manual II-31 shall be followed by every employee who drive City vehicle and personnel on City business.

304 Truck and Heavy Equipment Operation

a) Drivers must comply with all vehicle code regulations covering maximum weights, widths, heights and overhang of loads.

b) Binders are to be used as required to secure loads.

c) Vehicles having projections to the rear (load or part of the vehicle) four or more feet beyond the bed or body must display at the end of the projection:

1. During darkness, two red lights visible at least 500 feet to the sides and rear.

2. At all other times, a red flag not less than 16 inches square.

d) Poles, ladders, pipe, etc., shall be loaded parallel with the truck length. Such material shall not extend beyond the normal sides of the vehicle.

e) Materials shall be securely fastened to prevent a hazard due to shifting.

305 Vehicle Operations - General

a) The driver shall inspect his footwear before driving a vehicle and see that it is free of mud, excessive water, or grease, to prevent a slippery contact with brake and clutch pedals.

b) The operation of trucks or other heavy-duty equipment shall be restricted to qualified employees who are trained in their use.

c) The sides and end of the truck shall be guarded to prevent falls.

d) A safe means of entering and leaving the truck shall be provided and used.

f) Employees must ride only in the passenger space provided in Department vehicles. No one will ride with their legs hanging out of any vehicle.

g) Saws, chisels, axes, knives and other sharp tools carried on vehicles will be stored or guarded to prevent injury to workers.

h) Before proceeding, drivers should make certain that loads are properly secured and that riders are properly located.

i) Employees shall not get on or off vehicles in motion.

j) Drivers shall not permit more employees to ride than the number for which the seats with seat belts are provided and operable.

k) Employees driving or riding in City vehicles or private vehicles for City business, under 6001 pounds unladened, must use seat belts. Follow Administrative Procedure V-14 for additional details.

l) Employees shall remove their climbers before getting in a vehicle.

m) Before starting to move a vehicle, the driver shall determine that no person or object is in the path of the vehicle.

n) When a brake-equipped trailed vehicle is being operated a brake test shall be made on the towing vehicle each time the trailed vehicle is coupled or uncoupled and shall include visual inspection of brake hoses and couplings and an actual test of all possible braking combinations.

o) When outriggers are lowered or raised, they shall be within the view of the operator or shall be directed by an observer.

p) Only an employee specifically authorized and who possess a valid license or permit for the equipment being used shall operate a City-owned motor vehicle.

q) Drivers shall know and obey all state and local motor-vehicle laws applicable to the operation of their vehicle.

r) The driver shall drive at safe speeds no greater than that permitted by law. Traffic, road and weather conditions shall be given consideration in determining the safe speed within the legal limit at which the vehicle shall be operated.

s) A driver shall not permit unauthorized persons to drive, operate or ride in or on a company vehicle.

t) The driver shall determine that all equipment, brakes, windshield wipers, clean windows, lights, reflectors, etc., are in safe operating condition. Any defect shall be corrected prior to continued vehicle operation.

u) When conditions warrant, and a second employee is available, he must be so positioned that he can warn the driver of approaching danger and guide him in a safe movement of the vehicle.

v) The operator of a motor vehicle shall clearly signal his intention of turning, passing or stopping.

w) Upon a signal from a vehicle approaching from the rear, the driver of a Department vehicle shall yield the right-of-way.

x) Drivers shall be prepared to stop and the right-of-way shall be yielded in all instances where necessary to avoid an accident.

y) The driver of a vehicle shall be courteous toward other operators and pedestrians. He shall operate his vehicle in a safe manner and shall yield the right-of-way to pedestrians and other vehicles when failure to do so might endanger any person or another vehicle.

z) The driver shall stay a sufficient distance behind when following another vehicle so that he can safely stop the vehicle in the clear distance ahead.

aa) Drivers shall exercise added caution when driving through residential and school zones.

bb) When entering or leaving any building, enclosure, alley or street where vision is obstructed, a complete stop shall be made and the driver shall proceed with caution.

cc) Trucks on which derricks or booms are erected above traveling heights shall not be moved except under the immediate direction of a designated employee, who shall give his undivided attention to the movement.

dd) Before a radio-equipped vehicle is driven under or adjacent to energized equipment, especially in substation areas, the radio antenna shall be lowered and clearance checked in order to insure that proper clearances will be maintained between the vehicle and energized equipment.

ee) All ignition systems shall be turned off and no smoking permitted while refueling.

ff) When proceeding downgrade the clutch shall not be disengaged. Trucks, particularly if heavily loaded, shall be in a lower gear on steep grades.

gg) Drivers shall not stop or suddenly decrease the speed of a vehicle without first giving an appropriate signal when there is opportunity to give such a signal.

hh) Stopping for school buses

Upon or overtaking a school bus displaying flashing red lights, drivers of vehicles shall stop and remain standing until the red lights cease to operate.

ii) Safety chains for towed vehicles

Drivers shall comply with all applicable Vehicle Code requirements covering towing of vehicles. Where a safety chain is used as a secondary connection, it shall be so placed that in the event of the primary towing connection breaking, the tongue of the vehicle being towed will not fall upon the roadway. Safety chain connections shall be wrench-tightened.

306 Exhaust Gas

The driver shall not operate the motor in any garage except when driving in or out, and then the motor shall be operated as little as practicable. The motor shall not be warmed up inside a garage nor shall the driver test motor operation in a garage unless the exhaust gas is carried directly to outside atmosphere, or doors and windows are open so that adequate ventilation exists.

307 Parking

a) When vehicles must be parked on the roadway, they shall be parked on the right hand side parked in the direction of traffic flow, whenever possible or unless otherwise marked (head-in parking).

b) When parking on a roadway, vehicles shall park off the traveled road surface, whenever possible. When vehicles must park closer than 10 feet to the traveled road surface, appropriate warning devices shall be used.

c) Trucks or trailers stopped on any public roadway shall be protected by proper warning lights, reflectors or red flags in accordance with state or local requirements.

d) Vehicles shall not be parked on bridges or over culverts except when necessary for work.

e) When it is necessary to park on an incline, the driver shall make sure the vehicle is left in a safe position. The engine shall be turned off, the vehicle placed in the "park" position, and the parking brake set. The front wheels shall be cut into the curb and the rear wheels shall be chocked whenever necessary.

f) Drivers must comply with state and local parking regulations except when exemptions are granted for work involving construction, operation, removal or repair of utility facilities. Vehicles parked under the above conditions must be protected.

g) An operator must not leave the controls of any parked vehicle or mobile equipment in such a position that it might coast or freewheel from its parked position.

308 Backing

a) Extreme caution shall be exercised when backing a vehicle, to avoid injury to persons and to prevent property damage. If another employee is present, he shall be stationed at the rear of the vehicle to assist the driver in backing the vehicle safely.

b) When backing a vehicle which has an obstructed view to the rear:

1. A reverse signal (back-up alarm) audible above the surrounding noise level shall be used, or

2. An observer shall signal that it is safe to back.

3. Back Slowly.

4. Watch both sides but do not depend entirely on mirrors.

5. In any difficult backing situation, enlist the help of another person on the ground as a guide.

309 Stopping on Highway

a) Stopping on the highway shall be avoided.

b) When it is absolutely necessary to stop on the highway, extreme caution shall be used. Warning signal and lights shall be used.

1. Rotating beacon shall be used, if the vehicle is so equipped.

2. Tail lights/emergency flashers shall be used.

3. Flares or reflectors shall be placed to give adequate advance warning.

4. If work is in progress, traffic control devices (together with flagmen, where necessary) shall be used.

310 Industrial Trucks - Forklifts

a) Industrial trucks shall be operated only by authorized persons who are qualified and trained in their use.

b) Brakes and controls shall be tested prior to use. Equipment with faulty brakes or mechanical or electrical defects shall not be operated. Needed repairs shall be reported immediately.

c) Equipment shall always be operated at a safe speed for existing conditions.

d) Before moving the equipment, the operator shall make sure that no person or objects are in the path of the vehicle. Clearances in all directions shall always be checked, particularly overhead clearances.

e) Industrial trucks shall not be fueled with engine running.

f) When picking up a load, forks shall be set squarely and as far as possible under the load. Loads should not be raised or lowered while traveling. Loaded or empty, forks shall be carried as low as possible, but high enough to clear uneven surfaces.

g) Loads shall not be suspended or swung over any person. Employees shall not stand, pass or work under the elevated portion of any industrial truck, loaded or empty, unless it is effectively blocked to prevent it from falling.

h) The operator shall always face in the direction of travel.

i) On inclines, all types of loaded lift trucks shall be driven with the load on the upgrade side of the driver, whether ascending or descending.

j) Sudden stops which might spill the load shall be avoided.

k) All loads shall be securely fastened or safely positioned to prevent tipping or falling.

l) Lift bars on forklift trucks which are movable or replaceable shall be held firmly in place by a proper securing pin. Jury-rigged devices, such as using a threaded bolt, shall not be permitted.

m) Only attachments provided by or approved by the manufacturer may be used. Such attachments shall be properly secured. Improvised methods shall not be used.

n) No one shall be allowed to ride the truck, forklift or other equipment other than the operator, unless seats are provided for this purpose.

o) When an industrial truck is left unattended (operator is 25 feet away or the vehicle is not in his view), the load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off and brakes set. Wheels shall be chocked when the truck is parked on an incline.

p) Equipment with internal combustion engines shall not be operated in enclosed areas for prolonged periods of time so as not to exceed the allowable levels of carbon monoxide.

q) When loading or unloading trucks, approved dockboards which are properly secured shall be used. The wheels of the truck shall be blocked.

r) When driving on a dock, forklift has to be at least one wheel width from the edge of the dock.

s) Forklift operating rules shall be posted and followed by every employee operating forklift.

311 Cranes, Derricks, Hoisting Equipment

a) Crane Certification - All cranes and derricks, exceeding three tons rated capacity, shall be certified annually by a qualified person accredited by the U.S. Department of Labor or other person, currently registered as a professional Civil, Mechanical or Structural Engineer, by the State of California.

b) Proof load tests of cranes shall be carried out before being taken into initial use and every four years thereafter.

c) Only authorized persons shall be permitted in the cab or on the equipment. Only those designated persons who are trained and qualified shall operate the hoisting equipment.

d) No persons shall be permitted to ride the hook, sling or load of any hoisting equipment.

e) Load limits as specified by the manufacturer shall not be exceeded under any circumstances.

f) Operating and maintenance procedures as specified by the manufacturer shall be followed.

g) The following are the minimum checks which shall be made prior to each use:

1. All control mechanisms, for maladjustment interfering with proper operation.

2. All safety devices, for proper operation.

3. Deterioration or leakage in air or hydraulic systems.

4. Hooks, slings and load attachment devices.

5. Fire extinguisher available.

f) For the first lift of each day, the load shall be test-lifted and the brakes checked (load lifted several inches and then tested).

g) With every load, the slings and bindings shall be checked and shall be readjusted as necessary to insure safety and stability.

h) All slings and other fittings shall be of sufficient strength, proper type and safe for their intended use.

i) Signals to the equipment operator shall be given by one person designated to perform this task. The operator shall, however, obey a "stop" signal given by anyone.

j) When mobile hoists, cranes, booms or other similar lifting devices are used near energized lines or equipment, everyone must remain in the clear until the equipment is in a safe position. The employee in charge will see that all employees remain in a safe work position while the vehicle is being moved or the boom is being repositioned.

k) Portable cranes, hoists, derricks and similar material-handling equipment, machinery, tools and materials must be positioned, protected and/or operated so that no part comes closer to energized high-voltage lines than indicated in the following table:

Line Voltage (Phase to Phase)	Minimum Clearance Required
Above 600 V - 50 kV	10 ft.
- 69 kV	11 ft.
- 139 kV	15 ft.
- 230 kV	17 ft.

Note: These clearances do not apply to electrical construction, reconstruction maintenance or operations under the direction of qualified electrical workers using approved equipment and work procedures.

When lifting devices are used near energized lines or equipment, the lifting device shall be:

1. Properly grounded, or

2. Insulated, or

3. Isolated, or

4. Considered as energized.

l) Operators shall not move loads directly over the heads of themselves or others. Operators must not leave cranes, hoists or derricks unattached while load is suspended unless it is over a barricaded area or if it is blocked or otherwise supported from below during repair or emergency.

*Standard signals as set forth in the State Safety Orders will be used to signal derrick, crane, rotating boom and overhead traveling crane operators. The appropriate chart will be conspicuously posted in the vicinity of hoisting operations (cage or cab is so equipped) depicting and explaining the system of signals to be used.

m) When U-bolt wire rope clips are used to form eyes in winch lines, the number used and the spacing provided shall be in accordance with illustration. The U-bolt shall be applied so that the U section is in contact with the dead end of the rope.

o) Trucks on which derricks or booms are erected above traveling height shall not be moved except under the immediate direction of the designated employees, who shall give their undivided attention to the movement.

p) Outriggers, when provided, shall be used for the stability and safe operation of the equipment. The operator shall personally check that the outriggers have been properly placed and blocked in position.

q) A warning bell shall be sounded when overhead traveling and gantry cranes are in motion or loads are being moved overhead.

r) Cranes, derricks, hoists or other equipment shall not be used for side pulls or lifts that would affect the stability or over stress the equipment.

s) Loads shall be test lifted, brakes checked, and slings readjusted, when required, to check the stability and safety of the lift.

t) A load shall never be supported on the point of the hook.

u) The operator shall stop all crane or hoisting equipment motion and lower the load, if necessary, to correct any unsafe condition of the load, operating mechanism or terrain.

v) Slack in wire rope shall be taken up slowly to avoid sudden stress.

w) Wire rope under tension shall not be guided by the hands or feet.

x) Side pulls shall be made only when the rope enters the drum through the correct fleet angle.

y) A tag line shall be used to control suspended loads, as necessary, in close quarters or where the use of such line would increase the safety of the operation.

z) A tugger or hoist frame shall be sufficiently strong and securely anchored to safely bear the stress imposed.

aa) All controls shall be in the "off" position before the main switch is operated.

bb) All controls and switches shall be in the "off" position and brakes set before leaving a crane.

cc) The chain or door to the crane cab shall be closed or latched before a crane is placed in operation.

312 Aerial Lifts

General

a) Any type of equipment utilizing booms or ladders to raise baskets or platforms in or from which employees work will be classified as aerial lift equipment. For purposes of this section, the device used to elevate employees will be termed "boom"; the portion upon which they stand will be termed "basket."

b) Only authorized persons who are properly trained and qualified shall use or operate this equipment.

c) The operating and maintenance instruction manuals issued by the manufacturer shall be followed.

Line Voltage (Phase to Phase)	Minimum Clearance Required
Above 600V - 50 kV	10 ft.
- 69 kV	11 ft.
- 139 kV	15 ft.
- 230 kV	17 ft.

Note: These clearances do not apply to electrical construction, reconstruction maintenance or operations under the direction of qualified electrical workers using approved equipment and work procedures.

When lifting devices are used near energized lines or equipment, the lifting device shall be:

1. Properly grounded, or
2. Insulated, or
3. Isolated, or
4. Considered as energized.

l) Operators shall not move loads directly over the heads of themselves or others. Operators must not leave cranes, hoists or derricks unattached while load is suspended unless it is over a barricaded area or if it is blocked or otherwise supported from below during repair or emergency.

*Standard signals as set forth in the State Safety Orders are recommended to be used to signal derrick, crane, rotating boom and overhead traveling crane operators. The appropriate chart will be conspicuously posted in the vicinity of hoisting operations (cage or cab is so equipped) depicting and explaining the system of signals to be used.

m) When U-bolt wire rope clips are used to form eyes in winch lines, the number used and the spacing provided shall be in accordance with illustration. The U-bolt shall be applied so that the U section is in contact with the dead end of the rope.

n) Trucks on which derricks or booms are erected above traveling height shall not be moved except under the immediate direction of the designated employees, who shall give their undivided attention to the movement.

o) Outriggers, when provided, shall be used for the stability and safe operation of the equipment. The operator shall personally check that the outriggers have been properly placed and blocked in position.

p) An audible warning device shall be mounted on overhead traveling and gantry cranes which are controlled from a cab or cage and equipped with a power traveling mechanism.

q) Cranes, derricks, hoists or other equipment shall not be used for side pulls or lifts that would affect the stability or over stress the equipment.

r) Loads shall be test lifted, brakes checked, and slings readjusted, when required, to check the stability and safety of the lift.

s) A load shall never be supported on the point of the hook.

t) The operator shall stop all crane or hoisting equipment motion and lower the load, if necessary, to correct any unsafe condition of the load, operating mechanism or terrain.

u) Slack in wire rope shall be taken up slowly to avoid sudden stress.

v) Wire rope under tension shall not be guided by the hands or feet.

w) Side pulls shall be made only when the rope enters the drum through the correct fleet angle.

x) A tag line shall be used to control suspended loads, as necessary, in close quarters or where the use of such line would increase the safety of the operation.

y) A tugger or hoist frame shall be sufficiently strong and securely anchored to safely bear the stress imposed.

z) All controls shall be in the "off" position before the main switch is operated.

aa) All controls and switches shall be in the "off" position and brakes set before leaving a crane.

bb) The chain or door to the crane cab shall be closed or latched before a crane is placed in operation.

312 Aerial Lifts

General

a) Any type of equipment utilizing booms or ladders to raise baskets or platforms in or from which employees work will be classified as aerial lift equipment. For purposes of this section, the device used to elevate employees will be termed "boom"; the portion upon which they stand will be termed "basket."

b) Only authorized persons who are properly trained and qualified shall use or operate this equipment.

c) The operating and maintenance instruction manuals issued by the manufacturer shall be followed.

d) Load limits of the boom and basket shall not be exceeded. Shock loading (sudden stops or starts) of the equipment shall be avoided.

e) Aerial lifts shall not be "field modified" unless such modification is certified by the manufacturer. The insulated portion shall not be altered in any manner that might reduce its insulating value.

f) Unauthorized personnel must not be carried aloft nor allowed to operate controls in aerial lift equipment without specific approval of the supervisor in charge.

g) Surfaces of insulated booms, ladders, baskets, liners and platforms must be kept clean. A daily visual inspection, before use, and periodic detailed shop inspection for defects and safe operating conditions, shall be done. A record of the periodic inspections shall be maintained.

h) Material or equipment carried on the truck bed must not be placed or piled so as to obstruct access to ground controls.

i) Prior to use, the equipment shall be given a warm up period. The hydraulic system and all lift controls shall be checked and tested daily before use to determine such features are in safe working condition.

Malfunctions or unsafe operational conditions shall be reported. Equipment which is not in proper operational condition shall not be used.

j) Lower-level controls shall not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.

k) The truck shall not be moved unless the boom is lowered, the basket cradled and secured, and the outriggers retracted.

l) Employees shall not ride in the bucket while the truck is traveling. (Exceptions: Employees may ride in the basket for short moves at the work location if the basket is returned to the cradled position for each move and the employees face the direction of travel.)

m) When employees are in the bucket of an aerial lift, the emergency brake of the vehicle shall be set. Wheel chocks or outriggers shall be used to provide added protection. When the vehicle is on an incline, wheel chocks shall be used regardless of whether or not outriggers are used. The truck should sit approximately level when viewed from the rear.

n) When outriggers are used, they shall be set on pads or a solid surface.

o) Employees shall not belt to an adjacent pole or structure. When working from an aerial lift a body belt or harness shall be worn and lanyard shall be attached to the lift equipment.

p) Safety rules governing the use of hot-line tools, rubber goods, personal protective equipment and general safe practices shall also apply to work done from aerial baskets.

q) When a boom must be maneuvered over a street or highway, necessary precautions shall be taken to avoid accidents with traffic and pedestrians.

r) The operator shall see that the path of the boom or basket is clear when it is being moved.

s) Employees shall not stand or sit on top or edge of the basket or on ladders placed in the basket. Employee's feet shall be on the floor of the basket the entire time the employee is in it.

t) Drivers of aerial lift trucks must be constantly alert to the fact that the vehicle has exposed equipment above the elevation of the truck cab, and must determine that necessary travel clearance is available.

u) Booms must not be moved from the cradled position until outriggers have been lowered.

v) While outriggers are being lowered, all personnel must remain clear of the truck. Outriggers not visible to the operator must be observed by a crew member visible to the operator.

w) When positioned on hills for work, the truck must face the direction of the slope, uphill or down. In either case, the boom should extend only uphill, never downhill, from the truck.

x) Climbers shall not be worn by employees while in the basket.

y) When two employees are in the basket or baskets, one of them shall be designated to operate the controls. One employee shall give all signals, which shall be thoroughly understood by all persons concerned.

z) When two line mechanics are working from the basket, extreme care shall be taken to avoid one line mechanic contacting poles, cross-arms or other grounded or live equipment while the second line mechanic is working on equipment at a different potential.

aa) Clearances. The aerial lift, together with the employees in the basket and all tools and equipment shall maintain required clearances from unprotected energized conductors. Refer to overhead distribution section for required clearances, Rule 701(h) for qualified electrical workers, and Rule 311(k) for others,

bb) Each device shall have a conspicuously displayed legible plate, verifying the machine is designed and manufactured in accordance with ANSI.

cc) When using pneumatic or hydraulic tools in a bucket, the operator shall be sure that hoses or lines do not become entangled in the operational controls.

dd) Unless the vehicle is equipped with lower boom or pedestal insulation rated for the voltage being worked, aerial basket vehicles working adjacent to energized primary shall be properly grounded or barricaded and treated as energized.

ee) Adequate warning devices such as signs, cones, flags, lights, etc., must be utilized so as to warn or safely divert approaching traffic. Particular care must be taken with elbow-type aerial lift equipment when any portion of the boom extends into or over the path of approaching traffic.

313 Working Aloft

a) While aloft, employees must not transfer from baskets to poles or structures, nor between baskets on dual-basket trucks.

b) Employees must not enter or leave the basket unless the boom is cradled or placed in the approved position for entering or leaving the basket.

c) Except for ladder-type booms, employees must not walk on the boom to enter or leave the basket.

d) Tools, materials, or equipment must not be hung on the outside of the baskets while working overhead.

e) Only tool trays or hooks specifically designed for the purpose are to be attached to baskets.

f) The number of employees allowed to occupy or work from a basket must not exceed the number for which the basket was designed.

314 Ground Operations

a) When employees are aloft and exposed to voltages in excess of 600 volts, a qualified employee must be there as an observer and to operate the ground controls if the need arises.

b) Unless assured that no conductive portion of the boom or basket is in contact with energized conductors, employees must not step onto or off aerial trucks or pass material between the truck and the ground.

c) When minimum clearances specified in Rule 311-k cannot be maintained between non-insulated sections of an aerial lift boom and energized conductors:

1. Insulating barriers must be installed between the conductor and boom, or

2. The truck must be grounded, or

3. The truck must be considered energized and isolated by means of effective perimeter barricading.

d) When the truck is considered energized, ground personnel shall not touch the truck.

315 Single-Basket Aerial Lift Equipment

A qualified employee may work alone from single-basket aerial lift equipment:

a) Subject to Rule 701-a, (qualified employees).

b) On conductors and equipment energized at 600 volts or less, phase to phase.

316 Auto - Heavy Duty Mechanics Servicing - General

a) Loads suspended by hoists, slings, or chains shall also be supported by substantial blocks when anyone is required to work under the load.

b) The body of a dump truck shall be securely blocked during periods of maintenance or repair which require anyone to work under the bed while it is in a raised position.

c) Heavy parts shall be secured against tipping or falling if it is necessary to leave the work unattended.

d) Heavy duty equipment shall be adequately secured against accidental starting or movement of working parts during periods of repair, maintenance, or when left unattended. Operating levers in the "neutral" position shall not be considered adequate.

e) Adequate ventilation shall be used when it is necessary to work on or with equipment indoors with the engine running.

f) Gasoline and similar flammable solvents shall not be permitted to stand in open, uncovered containers. Only approved safety containers shall be used.

g) Care shall be taken to avoid the spilling of gasoline or similar flammable solvents into pits or onto heated surfaces that could be sources of ignition.

h) If solvents are used for washing or cleaning parts, they shall be only those approved for the purpose. Waste disposal procedures.

cc) When using pneumatic or hydraulic tools in a bucket, the operator shall be sure that hoses or lines do not become entangled in the operational controls.

dd) Unless the vehicle is equipped with lower boom or pedestal insulation rated for the voltage being worked, aerial basket vehicles working adjacent to energized primary shall be properly grounded or barricaded and treated as energized.

ee) Adequate warning devices such as signs, cones, flags, lights, etc., must be utilized so as to warn or safely divert approaching traffic. Particular care must be taken with elbow-type aerial lift equipment when any portion of the boom extends into or over the path of approaching traffic.

313 Working Aloft

a) While aloft, employees must not transfer from baskets to poles or structures, nor between baskets on dual-basket trucks.

b) Employees must not enter or leave the basket unless the boom is cradled or placed in the approved position for entering or leaving the basket.

c) Except for ladder-type booms, employees must not walk on the boom to enter or leave the basket.

d) Handlines, or other lifting apparatus must not be attached to or hung from baskets while working overhead.

e) Only tool trays or hooks specifically designed for the purpose are to be attached to baskets.

f) The number of employees allowed to occupy or work from a basket must not exceed the number for which the basket was designed.

314 Ground Operations

a) When employees are aloft and exposed to voltages in excess of 600 volts, a qualified employee must be there as an observer and to operate the ground controls if the need arises.

b) Unless assured that no conductive portion of the boom or basket is in contact with energized conductors, employees must not step onto or off aerial trucks or pass material between the truck and the ground.

c) When minimum clearances specified in Rule 317-k cannot be maintained between non-insulated sections of an aerial lift boom and energized conductors:

1. Insulating barriers must be installed between the conductor and boom, or

2. The truck must be grounded, or

3. The truck must be considered energized and isolated by means of effective perimeter barricading.

d) When the truck is considered energized, ground personnel shall not touch the truck.

315 Single-Basket Aerial Lift Equipment

A qualified employee may work alone from single-basket aerial lift equipment:

a) Subject to Rule 701-a, (qualified employees).

b) On conductors and equipment energized at 600 volts or less, phase to phase.

316 Auto - Heavy Duty Mechanics Servicing

General

a) Loads suspended by hoists, slings, or chains shall also be supported by substantial blocks when anyone is required to work under the load.

b) The body of a dump truck shall be securely blocked during periods of maintenance or repair which require anyone to work under the bed while it is in a raised position.

c) Heavy parts shall be secured against tipping or falling if it is necessary to leave the work unattended.

d) Heavy duty equipment shall be adequately secured against accidental starting or movement of working parts during periods of repair, maintenance, or when left unattended. Operating levers in the "neutral" position shall not be considered adequate.

e) Adequate ventilation shall be used when it is necessary to work on or with equipment indoors with the engine running.

f) Gasoline and similar flammable solvents shall not be permitted to stand in open, uncovered containers. Only approved safety containers shall be used.

g) Care shall be taken to avoid the spilling of gasoline or similar flammable solvents into pits or onto heated surfaces that could be sources of ignition.

h) If solvents are used for washing or cleaning parts, they shall be only those approved for the purpose. Waste disposal procedures.

i) Adequate fire prevention and protection measures shall be taken before welding, cutting, or fuel-handling operations are started.

j) No automotive internal combustion engine shall be fueled while it is in operation.

k) On stationary engines that cannot be stopped, the filler pipe must be extended beyond any source of ignition.

l) The attendant shall remain at the discharge nozzle or container during the delivery of fuel, unless the discharge nozzle is equipped with an operable approved automatic shutoff device. If the nozzle is so equipped, the attendant may leave the point of fuel delivery to check engine oil, radiator, tires, battery, clean wind-shield or to do other necessary work on the vehicle. The use of tie-down or blocking devices on discharge nozzles to maintain delivery of fuel is prohibited. Fuel spills shall be cleaned up immediately.

m) Smoking or open flame is prohibited within 25 feet of fueling or fuel delivery operations.

Note: It is especially hazardous down grade or down wind from the operation.

n) Pressure in the radiator shall be released by loosening the cap or by cooling with water before the cap is completely removed.

o) A hood shall be secured at all times when it is raised. When it has been closed it shall be checked to determine that it is completely latched.

p) Oil or other filler caps shall not be placed or installed where accidental contact with the fan is possible.

q) When inflating tires on the vehicle, the operator shall stand to one side as protection against blowouts or the release of the locking ring. In the absence of a cage enclosure a detached wheel shall be placed on the floor with the locking ring down. If this is impossible the operator shall stand to one side while inflating the tire.

317 Grease Pits and Hoists

a) Gasoline tanks shall be drained in a well-ventilated area. They shall never be drained over or adjacent to pits.

b) No one shall be permitted or shall remain in vehicles or equipment while they are in an elevated position on a hoist.

c) A hoist, while in motion, shall be under the control of the operator.

d) A hoist control mechanism shall be guarded against contact that would result in accidental operation.

e) A vehicle or equipment shall be properly placed and secured in position before a hoist is raised. The placement of the vehicle or equipment shall be checked as soon as the wheels have cleared the floor and the hoist shall be stopped for this safety check.

f) Air-operated grease guns shall never be pointed at another person nor the contents discharged into the palm of the hand or against any other part of the body.

g) Stepping from rail to rail of a hoist or from side to side of an uncovered pit is forbidden.

h) Pits shall be guarded by planking or chains when not in use.

i) Open flame shall not be permitted in any pit or adjacent area unless proper and adequate fire protection and fire prevention measures are taken.

j) Flammable material such as duckboards and sawdust shall not be permitted either as flooring or floor covering in a pit.

318 Jacks and Binders

a) Adequate room shall be provided for the safe operation of jacks and hoisting equipment. Handles shall be positioned to prevent injury or accidental release.

b) Only jacks, binders, and chain hoists in good condition, adequate for the work, and properly placed shall be used.

c) A chain binder shall be tightened by pulling on the handle, not by pushing.

d) A binder handle shall not be lengthened for the purpose of permitting a stronger pull.

319 Steam and Wash Racks

a) A steam cleaner shall be checked daily while in use to make sure the cleaner is in safe operating condition.

b) Firing or ignition procedure shall conform to established and approved methods.

c) The nozzle of a steam hose shall be adequately insulated against heat.

d) If solvents are used as part of a cleaning operation on a steam or wash rack, they shall be only those solvents that are approved for the purpose.

320 Hoisting and Rigging Gear

a) All slings and other fittings shall be of correct size for the work and shall have sufficient strength to safely sustain the stress imposed.

b) Employees shall not be in the bight of a live rope.

c) Softeners (protective material) shall be used where necessary to prevent damage or wear to equipment and as a means of increasing friction to prevent the accidental shifting of slings or grommets.

d) Extreme care shall be exercised in the selection, inspection, and use of chains.

e) Booms shall be adequately supported when sections are to be added to, removed or during repairs and maintenance operations.

321 Inspection of Equipment

a) The driver shall see that the first aid kit is well supplied, when normally furnished.

b) The driver shall see that the fire extinguisher is full, when normally furnished.

322 Chain/Wire Rope/Fiber Rope Slings

a) Chains - All steel chain slings shall be permanently identified stating size, grade and rated capacity.

b) Inspection - The chain slings and all attachments shall be inspected for damage or defects before use. In addition to the daily inspection, a thorough inspection of chain slings in use shall be done no less than once every 12 months depending upon frequency of use. Thorough inspection by a qualified person designated by employer shall include inspection for wear, defective welds, deformation and increase in link length. Records of such inspections shall be maintained.

c) Defective chain slings or attachments shall not be used until repaired. After repair chain slings shall be proof tested before use.

d) Chain slings shall be marked with grade, size and rated capacity and shall not be used in excess of their rated capacity.

e) Wire Rope Slings - Wire rope slings shall not be used in excess of their rated capacity.

f) Wire rope slings shall be immediately removed from service if any one of the following conditions are present:

1. Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay..

2. Wear or scraping of 1/3 yd. the original diameter of outside individual wires.

3. Kinking, crushing, bird caging or any other damage resulting in distortion of the wire rope structure.

4. Evidence of heat damage

5. End attachments that are cracked, deformed or worn.

6. Hooks that have been opened more than 15% of the normal throat opening.

7. Corrosion

8. One or more broken wires within one rope lay of the end attachments.

g) Inspection of the wire rope slings shall be done by employees before use.

h) Natural and Synthetic Fiber Rope Slings - shall be used only in accordance with the manufacturer's recommendations. Fiber rope slings shall be removed from service if any of the following conditions are present:

1. Abnormal wear

2. Powdered fiber between strands

3. Broken or cut fibers

4. Variations in the size

5. Discoloration or rotting

6. Distortion of hardware in the sling

a) Work area protection is the adequate safeguarding or protecting of pedestrians, motorists, department workmen and equipment by the use of proper barriers, warning signs, lights, flags, traffic cones, high-level standards, barricade rope, flaggers, etc., on approaches to work areas, excavations, open manholes, parked equipment, etc.

b) The Manual of Traffic Controls, Warning Signs, Lights and Devices for use in performance of work upon Highways published by the State of California, Department of Transportation, shall be used as a guide and reference for all work in public streets.

c) The use of these devices must be coupled with proper planning, design, installation, inspection, maintenance and the use of common sense. It is of the utmost importance that the work area be properly identified and that warning devices say what they mean, to convey the message to the traveling public well in advance of arrival at the work area.

d) The public must be warned in advance, then regulated and guided safely through or around the work area. Proper work area protection shall be planned to insure the safety and protection of the public, the workmen and the equipment.

e) Such warnings shall be placed immediately at the point of excavations, obstructions, or other hazards, and in addition shall be placed sufficiently far in advance and to the rear thereof as to provide adequate notice or warning to motorists that they are approaching said excavations, obstructions, or other hazards. On high-speed highways it is desirable to place such advance warnings several hundred feet away from the actual excavations, obstructions, or other hazards. (Illustrative of the need for this is the fact that tests show that the average stopping distance for a vehicle with four-wheel brakes, going 55 miles per hour, is 271 feet, including reaction distance.) The distance such advance warnings should be placed from the excavations, obstructions, or other hazards must, of course, vary according to the conditions. In lower-speed areas they should be closer, and in high-speed areas, farther away--in some cases at least 500 feet. Care shall be exercised to avoid placing these advance signs too far away and thus causing motorists to disregard them and speed up after passing them. Care shall be exercised to remove such signs as soon as the excavations, obstructions, or other hazards are removed so as to preclude the motoring public from coming to disregard the warning of our signs because of the absence of the obstructions or hazards which they are left to point out.

401 Equipment

a) Only those signs, standards, barricades, flags and cones which conform to state or local codes shall be used.

b) Approved warning signs, barriers, guards, flags, flares and lights will be properly installed and maintained wherever hazards exist due to moving or stationary machinery or vehicles, exposed energized parts of equipment, open excavations, construction operations, removal of manhole or handhold covers and similar work.

c) All state and local traffic codes shall be followed when providing work area protection.

d) During night operations or in periods of reduced visibility, special precautions shall be taken. Adequate warning equipment, which may include flashing lights, flares or area illumination, shall be used.

e) Warning devices and equipment shall be removed as soon as the hazard is eliminated.

f) Warning devices and equipment not in use shall be stored in a proper manner or shall be removed from the work area.

402 Flaggers

a) Where pedestrian or vehicular traffic and conditions require it, a properly trained and equipped flagger must be stationed to warn the traffic; however, he should not "direct" or assume unnecessary control of traffic. Where conditions warrant, an employee will be stationed at the surface to guard open manholes, pits and vaults.

b) Employees exposed to vehicular traffic shall wear orange warning garments of high visibility material. Warning garments worn at night shall be of reflectorized material.

c) Flaggers using hand signaling equipment shall insure signals provide sufficient warning to protect themselves and the work site.

   1. Signal flags shall be red and at least 24 inches square.

   2. In periods of darkness or reduced visibility, red lights shall be used.

d) Flaggers shall place themselves in a protected position to reduce the possibility of injury from traffic.

401 Equipment

a) Only those signs, standards, barricades, flags and cones which conform to state or local codes shall be used.

b) Approved warning signs, barriers, guards, flags, flares and lights will be properly installed and maintained wherever hazards exist due to moving or stationary machinery or vehicles, exposed energized parts of equipment, open excavations, construction operations, removal of manhole or handhold covers and similar work.

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b) Employees exposed to vehicular traffic shall wear orange warning garments of high visibility material.

c) During the hours of darkness, flagger's stations shall be illuminated such that the flagger will be clearly visible to approaching traffic and flaggers shall be outfitted with reflectorized garments.

d) A warning sign shall be placed ahead of the flaggers, reading "Flagman Ahead." The distance between the sign and the flagger shall be based on the traffic speed, allowing approximately 50 feet for each ten miles, per hour.

e) Flaggers shall insure they can fully observe the operation and shall guide vehicular traffic in such a manner as to minimize the possibility of accidents or injury.

f) When flaggers are used at both ends of a job site, reliable communications or prearranged signals shall be used to insure proper traffic flow.

g) Flaggers shall face traffic when giving signals.

h) Flaggers shall be trained in the properr fundamentals of flagging moving traffic. Signaling directions used by flaggers shall conform to the "Manual of Traffic Control", by State Department of Transportation.

SECTION 5 - TREE TRIMMING

501 General

a) When tree trimming, tree falling, brush loading or brush disposal operations are under way on street, highway or any other area accessible to the public, "Men Working" signs, cones, red flags or flares, barricades and other warning devices (or combinations thereof) shall be used to protect vehicular and pedestrian traffic.

b) Tree climbing-type climbers shall be used for tree climbing and shall have gaffs of the type and length suitable for the tree being climbed.

c) Dead or rotted limbs, regardless of size, shall not be used by employees for support.

d) No work shall be done in a tree until employee is securely tied in or belted to the tree or other secure object.

e) The climbing rope shall be crotched in such a manner as to prevent its "working out" on a lateral limb.

f) When working in a multiple-trunk tree, the climbing rope shall preferably be crotched around a main trunk other than the one on which the employee is working.

g) Employees shall crotch their climbing in two places if a single crotch does not adequately protect them from falling into energized lines or falling back into trunk of tree.

h) The climbing rope shall not be used as a pull-rope or as a handline to lower limbs or branches.

i) The ground end of a climbing rope shall not be allowed to dangle over roadways and shall be kept free from obstructions, passing vehicles, etc.

j) The taut-line hitch shall not be released until the climber is on the ground.

k) Branches or other material shall not be dropped unless the immediate area has been cleared so that there is no possibility of injury to persons or damage to property. If such a possibility exists, a rope shall be used to lower branches or other materials.

l) When lowering heavy tree members, employees shall not tie fall lines around hands or bodies.

m) Employees shall not attempt to clear limbs or brush from under that side of tree where the climber is working.

n) Employees shall obtain assistance or use power equipment when lifting logs or other heavy loads.

o) When loading brush on a truck, employees shall not stand on or straddle the loaded brush.

p) Brush shall be hauled away promptly or otherwise disposed of to avoid presenting an "attractive nuisance" to children and to prevent injury to persons or damage to passing vehicles.

q) When hauling brush, care shall be taken that it doesn't extend over the sides of the truck.

r) When it is necessary to work in the vicinity of poison ivy, poison oak or poison sumac, employees shall keep sleeves rolled down and wear gloves.

s) The safety lines and saddle shall be of approved design and material, and shall be inspected periodically by the supervisor.

t) Bull and tackle lines shall be carefully selected, placed, and inspected each day of use by the supervisor.

u) The condition of a tree and other potential hazards shall be checked and the safest work position determined before starting work. The direction and intensity of the wind shall be considered before climbing. Hazards observed shall be discussed with employees before the start of trimming work.

v) No one shall work or stand under trimming or cutting operations.

w) Ladders shall be secured at the top, and, whenever practicable, at the bottom. The ladder shall be placed and secured so that it is entirely independent of any line used in the cutting or trimming operation. The ladder shall never be used as a "gin."

x) Trimming shall not be done on wet trees or during high winds except in emergency.

502 Working Near Energized Conductors

a) Wires in proximity to tree trimming shall be considered as energized unless proven to be dead and are grounded.

b) Parts of trees in contact with, or likely to contact conductors energized above 300 volts, shall be cut with insulated tools or employee shall wear rubber gloves when making cut. Limbs being removed from contact with wires are to be handled with the same precautions as the wires themselves. Care shall be taken to prevent limb being removed from coming in contact with employee's body.

n) Employees shall obtain assistance or use power equipment when lifting logs or other heavy loads.

o) When loading brush on a truck, employees shall not stand on or straddle the loaded brush.

p) Brush shall be hauled away promptly or otherwise disposed of to avoid presenting an "attractive nuisance" to children and to prevent injury to persons or damage to passing vehicles.

q) When hauling brush, care shall be taken that it doesn't extend over the sides of the truck.

r) When it is necessary to work in the vicinity of poison ivy, poison oak or poison sumac, employees shall keep sleeves rolled down and wear gloves.

s) The safety lines and saddle shall be of approved design and material, and shall be inspected periodically by the supervisor.

t) Bull and tackle lines shall be carefully selected, placed, and inspected each day of use by the supervisor.

u) The condition of a tree and other potential hazards shall be checked and the safest work position determined before starting work. The direction and intensity of the wind shall be considered before climbing. Hazards observed shall be discussed with employees before the start of trimming work.

v) No one shall work or stand under trimming or cutting operations.

w) Ladders shall be secured at the top, and, whenever practicable, at the bottom. The ladder shall be placed and secured so that it is entirely independent of any line used in the cutting or trimming operation. The ladder shall never be used as a "gin."

x) Trimming shall not be done during high winds or any other adverrse weather conditions which makes the work hazardous, except during emergency restoration procedures.

502 Working Near Energized Conductors

a) Wires in proximity to tree trimming shall be considered as energized unless proven to be dead and are grounded.

b) Parts of trees in contact with, or likely to contact conductors energized above 300 volts, shall be cut with insulated tools or employee shall wear rubber gloves when making cut. Limbs being removed from contact with wires are to be handled with the same precautions as the wires themselves. Care shall be taken to prevent limb being removed from coming in contact with employee's body.

c) Employees shall never pass between or contact wires energized at voltages above 300 volts unless such wires are covered with protective devices.

d) Employees shall not remove tree limbs or branches from above energized conductors while other employees are working in trees below the conductors in the same span.

e) Broken or fallen wires shall not be handled except by persons experienced in such work.

f) When working near wires the employees shall have their climbing rope so secured that in the event he slips or a limb breaks, they will swing free and clear of the wires.

g) Tree limbs shall not be dropped on conductors.

h) Ropes shall not be thrown over conductors or crossarms for the purpose of using the conductor or crossarm as a support or hitch.

i) Dry ropes shall be used in trees through which energized conductors pass.

j) If electric powered tools are used in trees, the supply cord shall be kept a minimum of 6 feet from energized conductors. Rubber gloves shall be worn when using such equipment in proximity to energized conductors or when cutting limbs that may contact such conductors.

k) When using aerial basket equipment, employees shall take care not to bring any part of their body, the equipment or any tool closer to the minimum distance specified in Rule 701(h).

l) Only qualified line clearance tree trimmers or trainees under the direct supervision of a qualified line clearance tree trimmer shall be permitted to perform line clearance tree trimming operations. during all tree trimming operations, there shall be another qualified line clearance tree trimmer or trainee to render immediately assistance.

503 Tree Felling

a) Trees to be felled shall be inspected for dead limbs which may break, or broken limbs lodged in the tree, either of which may fall into the working area as the job progresses.

b) No one shall be allowed to work in a tree located near a tree that is being felled if there is any danger of its being struck by any part of the falling tree.

c) All persons not engaged in the felling operation shall be kept clear of guide ropes and other rigging.

d) Clear warning shall be given to all employees in area when trees are to be felled or heavy tree members are to be dropped.

e) Once the felling of a tree has been started, it shall be completed before leaving the job.

f) When trees or heavy tree members are felled, all exposed walks, roadways and lawns shall be protected if necessary with a cribbing of branches to avoid property damage.

504 Care and Use of Tools and Rope

a) Ropes shall be inspected periodically. Damaged sections shall be cut out and destroyed or the rope replaced.

b) Ropes shall be kept away from fire, acids, oil, chemicals and all sources of excessive heat.

c) Dragging ropes over rough surfaces and sharp objects, such as rocks, shall be avoided. Ropes shall be stored separately from sharp-edged cutting tools.

d) The cutting edge of tools shall be suitably sheathed or guarded except while in actual use.

e) When not in actual use, the trimmer's saw shall be stored properly in metal bin of the truck.

f) Axes shall not be used in trees or carried on the shoulder.

g) Tools shall not be thrown into or dropped from a tree; they shall be raised or lowered by a suitable rope line.

h) A pruner shall not be laid on a limb, in a crotch or hooked on a wire or rope. It shall be hooked over a limb strong enough to hold its weight.

i) Ladders shall be removed from the base of the tree when not in use.

505 Powered Trimming Equipment

a) Employees operating powered trimming equipment shall wear suitable eye protection.

b) For hearing protection requirements, refer to Rule 202.

c) When starting a chain saw, it shall be kept away from the body.

d) The operator shall grip the chain saw with both hands during the entire cutting operation wherever applicable.

e) Saw bumper shall be against tree or limb before starting a cut.

f) Chain saw operators shall, when necessary, clear the immediate area around their work to make certain that brush will not interfere with either the chain saw or operator.

g) All chain saws shall be equipped with "deadman" controls (constant pressure control) that will return the saw to idling speed when released.

h) The chain saw engine or motor shall be stopped:

1. When working on any part of the chain or cutting bar.

2. While the saw is being moved from one location to another.

3. While unit is unattended.

i) Gasoline-driven chain saw engines shall be stopped when being refueled. If gas is spilled on chain saw during refueling, it shall be wiped off before engine is started.

j) A gasoline-driven chain saw shall not be used above one's head.

k) Employees shall maintain a safe working distance from other employees when using hand tools.

l) Employee shall never hand a pneumatic pruner or saw to another employee unless it is disconnected from air hose.

m) Power tools shall not be left unattended if connected to power source.

n) Powered tools shall not be adjusted or repaired while connected to power source.

506 Chippers

a) Chippers shall never be parked directly under tree being trimmed.

b) Employees shall not permit spectators to stand near machine while feeding brush into chipper.

c) Full-cover goggles or face shield shall be worn by employee when feeding brush into chipper.

d) Employee shall never place hands or other part of body into brush hopper while chipper is in operation.

e) Tools or other metallic objects shall not be used to push brush into chipper. Sweepings, which may contain foreign objects such as stones and nails, shall be loaded on truck and not fed into the chipper.

f) Ignition key shall be removed when chipper is left unattended.

g) For hearing protection requirements, refer to Rule 202.

507 Employee Training

a) Employees shall be trained and instructed in the hazards involved in tree trimming, including the use of all equipment utilized in tree work. Such training shall be documented by the supervisor to certify that employee has completed the training program prior to performing the job assignment.

b) Each work location shall be under the direction of a qualified tree worker.

508 Qualified Line Clearance Tree Trimmer

This person must have completed a minimum of 18 months related training and on-the-job experience and is familiar with the special techniques and hazards involved in line clearance tree trimming operations.

SECTION 6 - DISPATCHING AND CLEARANCE RULES

601 Scope and Purpose

These rules shall apply in all instances where work is to be performed on lines or equipment as specified in **Section 7 (Overhead Distribution & Transmission) & Section 10 (Electric Substations).**

The purpose of these rules is to establish uniform safe operating and clearance procedures for working on lines or equipment.

Clearances are used for protection of personnel and for protection of equipment.

In addition to these rules, SCADA Control Center procedures pertinent to System Dispatching and Clearances shall be followed.

602 Authority and Responsibility of the Senior Power Dispatcher and Field Personnel

a) Operating Authority The operating authority is the SCADA Control Center, an office charged with the operations of the Electrical System. Except during emergencies [see #602(c)], no turbine, generator, circuit breaker, synchronous condenser, transmission line, distribution line, power transformer, feeder, control wiring, or similar apparatus shall be put in service or taken out of service without first having obtained the approval from the SCADA Control Center Senior Power Dispatcher or Power Dispatcher. No switching is to be performed on 2.4 kv or higher voltages without obtaining the approval from the SCADA Control Center Senior Power Dispatcher or Power Dispatcher. Approval shall also be obtained from the SCADA Control Center Senior Power Dispatcher or Power Dispatcher before any work is performed on any relay, control wiring or any other auxiliary equipment which in any way affects, or through an accident or mistake might affect the ability to generate and transmit power; or before placing any automatic equipment in a non-automatic mode on 2.4 kv or higher voltages of equipment under his jurisdiction.

b) Expedite Resumption of Service In order to expedite the resumption of service during emergencies, abnormal system conditions, and in time of disaster the SCADA Control Center will coordinate the activities of all Electrical Sections and with the Emergency Operating Center (EOC).

c) Emergency Operation Whenever necessary for protection of life or property, or when communication is interrupted, or at times of serious disaster, any qualified employee [see #606(c)] may have lines or apparatus de-energized, provided the employee is sure such action is necessary, safe or for the best interest of the Department or its customers. Such emergency operation must be reported to the SCADA Control Center Senior Power Dispatcher or Power Dispatcher as soon as possible with all details, facts and names of all parties concerned and information is to be logged.

d) Working, Testing, or Switching in Substations Permission must be obtained from the SCADA Control Center before any testing, switching or other work is done in any substation equipment. The Power Systems Superintendent or Senior Power Dispatcher will determine the necessity of providing personnel for checking such work. The SCADA Control Center will be notified after the work is completed.

603 Authority to Issue a Clearance

Only the proper operating authority may issue a Clearance [see 602 (a)].

604 Clearance - Definition and Function

a) A **"Clearance"** is a statement by the operating authority having jurisdiction to an individual or another operating authority receiving the clearance that the specified equipment is in status to be worked on, in, or near, according to Rule 606 (b), and that the specified equipment will remain so, insofar as the party issuing the clearance is concerned, until the clearance is released. Any change of status of equipment under a clearance will be on the authority of all parties holding clearance on the equipment involved. The function of a clearance is to prevent any change of status of equipment that is being worked on, in, or near, which would be dangerous to persons or property.

b) A clearance exists when all automatically or remotely controlled devices that are capable of energizing the circuit are rendered inoperable and an airbreak disconnect exists on all boundaries of the clearance (i.e., A.C.B.'s are opened and racked out or down or isolating disconnects are opened between O.C.B., V.C.B., G.C.B. and source of voltage).

c) All clearance boundaries and switched-out equipment will be tagged. Solid red tags will indicate de-energization. Silver stripped red tags will indicate one side of the disconnect is energized. Yellow tags will indicate equipment under construction.

605 Clearance Required

A clearance is required when work is to be performed on, in, or near equipment, the status of which may become dangerous to persons, property, or service if a clearance is not obtained.

606 Prerequisites to a Clearance

a) A formal request must be made to the SCADA Control Center (Operating authority) by a qualified person [see Rule 606 (c)] at least 24 hours in advance of start of work on Tuesday through Friday; 48 hours in advance for Saturday, Sunday and Monday; and 72 hours in advance of start of work when the Burbank-Toluca-Valley 69 kv lines are involved with LADWP, except in emergency conditions, specifying exactly what equipment a clearance is desired upon. Stating when and for approximately how long clearance will be required, location, and nature of work to be performed or other reason for which a clearance is required.

b) The SCADA Control Center personnel, who are charged with operation of the equipment involved and who will issue the clearance, will first render the equipment safe for persons to work on, in, or near, by de-energizing the equipment and isolating it from any possible source of power. They will then take all necessary precautions to insure that the status of the equipment will remain non-hazardous to person(s), property, or service for the duration of the clearance. After the above actions and precautions are taken, a clearance may be issued.

c) Upon approval, the clearance will be issued to qualified personnel by the Senior Power Dispatcher or Power Dispatcher on duty. The personnel qualified to receive a clearance are: Electrical Equipment Superintendent, Electrical Supervisor, Electrical Distribution Superintendent, Line Mechanic Supervisor, Electrical Test Superintendent, and Authorized Acting Electrical Test Superintendent, Electrical Supervisor, and Line Mechanic Supervisor.

607 Issuing a Clearance

a) Formal Statement of Status When issuing a clearance, the Senior Power Dispatcher or Power Dispatcher will state clearly to the person requesting the clearance what breakers, disconnects, etc., are open and if protective grounds, if any, are applied. Where provided, station ground disconnects will always be used to ground line or equipment. Any piece of equipment will be identified by the use of its correct name. In case of a line, it must be given its proper designation, and the terminals between which the line has been cleared for work will be specifically named. All switching operations must be reported to the Senior Power Dispatcher or Power Dispatcher by the person to whom the switching orders were given, and logged by him with the exact time of each operation and the names of all parties involved. Senior Power Dispatcher or Power Dispatcher will state that at "_____ (time), _____ (name of person receiving the Clearance) has a Clearance on _____ (name of equipment involved) and _____ (Clearance Number)."

b) Receiving a Clearance The person receiving the clearance will repeat it back word for word so as to assure that there is a mutual understanding of all the conditions, limits and provisions of the clearance as issued. The Senior Power Dispatcher or Power Dispatcher will log the clearance in red, stating that such a person (giving name) has a clearance on the specified line or piece of equipment, and clearance number.

c) Multiple Clearances As many qualified persons as necessary may obtain a clearance on a line or piece of equipment, but each person will exercise the same precaution and follow the same procedure in obtaining and releasing their clearance on the equipment involved.

608 Typical Clearances

a) A Line Clearance The line OCBs, line side disconnects and line PTs will be opened and the line will be grounded where available.

b) A Line Position Clearance The line OCBs, line and bus side disconnects and line PTs will be opened.

c) A Transformer Bank Position Clearance High and low side bank OCBs, ACB, or VCB will be opened. High and low bank side disconnects and station power fuse disconnect will be opened. The low side bank ACB or VCB will also be racked out or down.

d) 4 kv Feeder Position Clearance The feeder OCB and disconnects will be opened, the ACB or VCB will be opened and racked out or down. The cable selector disconnects will be opened to the operating bus and regulators in neutral & off control.

e) Generator Position Clearance

1. Magnolia Generator #2 - A-6 Transformer Bank high side Load Break disconnects will be opened, low side OCB disconnects and generator PTs will be opened.

2. Magnolia Generator #3 & #4 - A-3 or A-4 Transformer Bank high side OCBs and disconnects will be opened, low side generator cable disconnects and generator PTs will be opened.

3. Magnolia Generator #5 - A-5 Transformer Bank high side OCBs and disconnects will be opened, generator PTs, low side ACB will be opened and racked out with control switch open.

4. Olive Generator #1 & #2 - A-1 or A-2 Transformer Bank high side OCB, disconnects, bus selector disconnects to both 69 kv busses #1 & #2 will be opened. B-1 or B-2 transformer bank high side disconnects will be opened, low side ACB will be opened by the Power Plant Shift Supervisor and racked out by the Olive Power Plant Electrician. SCADA Control Center switching team personnel will observe and tag for clearance.

609 Construction Clearance

A construction clearance will be issued on any new substation, line or equipment, by SCADA Control Center Power Systems Superintendent upon request from the Electrical Equipment Superintendent, Electrical Distribution Superintendent, or their designee. A construction clearance is a written clearance and must be signed off before it can be released. The new substation, line, or equipment will be certified for service by the Power Systems Superintendent, Electrical Equipment Superintendent, Electrical Distribution Superintendent or their designee.

610 Releasing and Transferring Clearance

a) Formal Release Each person holding a clearance will make a personal inspection of the job location before releasing his clearance. All clearances shall be released in a formal manner. Upon completion of work, the person holding the clearance will remove any personal grounds which had been attached to lines or equipment by him or his personnel. When this has been done, he will report to the Senior Power Dispatcher or Power Dispatcher. He will first give his name and will then state that he is clear of _____
name of line or equipment
shorts and grounds have been removed, his men are in the clear, and that the line or equipment "is" or "is not" ready for service. A complete statement of its status and condition shall be reported at this time. The complete report will be repeated back and the release or the clearance will be recorded in the log in blue ink.

b) Direct Personal Release Any clearance will normally be released directly by the person to whom the clearance was issued. If at any time this is impossible, due to accident or any other cause, the line or equipment will be patrolled or inspected before it is energized or reactivated. The Senior Power Dispatcher or Power Dispatcher will be assured that the patrolling or inspection has been adequate, and will thereafter require that the Superintendent, or his representative having jurisdiction, verify that it is then safe to have the line or equipment returned to service.

c) Changes on Lines or Equipment Whenever changes of other than routine nature are made on lines or equipment during work under a clearance, the person holding the clearance will be held responsible for reporting all such changes when he releases his clearance. Senior Power Dispatcher or Power Dispatcher will then log all such information.

d) Transferring Clearances If a person holding a clearance to work on lines or equipment desires to transfer his clearance to another qualified person, he must call the Senior Power Dispatcher or Power Dispatcher and report that it is desired to transfer his clearance to a second, qualified person, giving the second party's name. The second party must then take a clearance (see Rule 606 a.) on the line or equipment, after which the first party must then release his clearance. Personal shorts and grounds may be transferred at the same time if so stated. The second party will then be held responsible for the clearing of the line or equipment at the completion of the work.

611 Procedures to Restore Lines or Equipment to Service After Completion of Work

a) Lines After every person holding clearance on a line has released his clearance and has stated that he and his men are in the clear, and all personal shorts and grounds have been removed, and that the line is ready for service, the Senior Power Dispatcher or Power Dispatcher will proceed to return it to service.

b) Substation Equipment After every person holding a clearance on a piece of equipment has released his clearance and has stated that he and his men are in the clear, and all personal shorts and grounds have been removed, and that the equipment is ready for service, the Senior Power Dispatcher or Power Dispatcher will proceed to return it to service.

612 Foreign Utility Clearance

a) Line Clearance (Substation Work) - The request will originate with the Foreign Utility to the Burbank SCADA Control Center Senior Power Dispatcher or Power Dispatcher. Burbank SCADA Control Center will do required switching and ground line where applicable. The Foreign Utility will do same on their end. Burbank SCADA Control Center will issue a **Line Clearance** to Foreign Utility. The reverse procedure will be used when Burbank SCADA Control Center requests a **Clearance** from a Foreign Utility.

b) Line Clearance (Electrical Distribution Work) - The request will originate with the Foreign Utility to the Burbank SCADA Control Center Senior Power Dispatcher or Power Dispatcher. Burbank SCADA Control Center will do required switching and ground line where applicable. The Foreign Utility will do same on their end. Foreign Utility will issue a **Line Clearance** to Burbank SCADA Control Center. Burbank SCADA Control Center will issue a **Line Clearance** to authorized Burbank Electrical Distribution personnel. Release of the **Line Clearance** will be a reversal of this procedure.

613 Verbal Switching Orders

When issuing written and verbal switching orders the Senior Power Dispatcher or Power Dispatcher will state in detail and in proper sequence the switching to be performed, and will require the person taking the order to repeat the same verbatim. The SCADA Control Center will log all switching operations and keep record of written switching orders as part of the daily record.

614 Emergency Switching

In the event a breaker must be opened to save a life or to make a rescue, the breaker or breakers controlling that equipment may be opened, but such emergency operation must be immediately reported to the SCADA Control Center having jurisdiction over that breaker. The facts and names of all parties concerned are to be logged.

615 A Hold

A **hold** will be issued on any piece of equipment controlled by SCADA Control Center Senior Power Dispatcher or Power Dispatcher, on request. This will guarantee the holder that whatever the status of the equipment was at the time the hold was issued, it will remain as such. No switching, breaker opening or closing will take place until the **hold** has been released, except in the event of relay operation, at which time the holder will be notified first.

616 Persons at Work on Cable

This is not a clearance because the SCADA Control Center does not have complete control. Persons at work on cable will be issued only after the feeder load has been transferred to another feeder and the feeder position is completely switched out in the following manner: 4 kv or 12 kv feeder OCB, ACB, or VCB open; voltage regulators where applicable in neutral and off control; OCB disconnects open or ACB, VCB racked out or down; cable selector disconnects open to operating bus and transfer bus.

617 Protective Clothing

The following protective clothing will be used during all electrical switching operations:

a) Hard hat (class A&B) and face shield (Polycarbonate)
b) Safety glasses
c) PBI/Kevlar fire retardant switching smock
d) Kevlar heat protection gloves
e) Safety shoes
f) Full sleeve City-approved 100% cotton shirt

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SECTION 7 - OVERHEAD DISTRIBUTION AND TRANSMISSION

701 General

a) Definition:

For the purposes of this section, a qualified employee is defined as a person who, by reason of his training and experience, holds one of the following positions in the Public Service Department:

1. Electrical Distribution Supervisor
2. Line Mechanic Supervisor
3. Senior Line Mechanic
4. Line Mechanic
5. Apprentice Line Mechanic (Step 4 or Above)

b) Only qualified employees shall be permitted to perform any function on or near energized lines or equipment. During the time an employee is doing work on any conductor or apparatus energized in excess of 600 volts, phase to phase, another qualified employee in close proximity to the work shall act primarily as an observer, for the purpose of preventing an accident.

c) No employee shall touch any exposed ungrounded line wire or apparatus unless the wire is insulated from other conducting surfaces or uses adequate protective devices.

d) Employees shall immediately report to their supervisor any defective line, apparatus or tool or other condition which in their judgment may be dangerous either to persons or property or likely to interrupt or delay service.

e) Electrical equipment and lines shall always be considered as "live" unless they are positively known to be dead. Before starting to work, preliminary inspection or test shall be made to determine what conditions exist. Care shall be exercised to handle neutral wires with the same caution as is used with other energized wires.

f) Qualified employees may be assigned to work alone when replacing fuses or operating switches, performing other operations which do not require the employee to work on exposed energized high voltage conductors or parts of apparatus or during emergencies or "trouble" work involving hazards to life or property.

g) A City-supplied 100% cotton shirt with full length sleeves rolled down shall be worn when working on or near live parts, erected poles, steel towers, or similar structures, manlifts, ladders, and under such other conditions as the employees in charge shall direct. Refer to Rule 118.

701 General

a) Definition:

For the purposes of this section, a qualified employee is defined as a person who, by reason of his training and experience, holds one of the following positions in the Public Service Department:

1. Electrical Distribution Supervisor
2. Line Mechanic Supervisor
3. Senior Line Mechanic
4. Line Mechanic
5. Apprentice Line Mechanic with one year training (only for voltages 600 and less)

b) Only qualified employees shall be permitted to perform any function on or near energized lines or equipment. During the time an employee is doing work on any conductor or apparatus energized in excess of 600 volts, phase to phase, another qualified employee in close proximity to the work shall act primarily as an observer, for the purpose of preventing an accident.

c) No employee shall touch any exposed ungrounded line wire or apparatus unless the wire is insulated from other conducting surfaces or uses adequate protective devices.

d) Employees shall immediately report to their supervisor any defective line, apparatus or tool or other condition which in their judgment may be dangerous either to persons or property or likely to interrupt or delay service.

e) Electrical equipment and lines shall always be considered as "live" unless they are positively known to be dead. Before starting to work, preliminary inspection or test shall be made to determine what conditions exist. Care shall be exercised to handle neutral wires with the same caution as is used with energized wires.

f) Qualified employees may be assigned to work alone when replacing fuses or operating switches, performing other operations which do not require the employee to work on exposed energized high voltage conductors or parts of apparatus or during emergencies or "trouble" work involving hazards to life or property.

g) A City-supplied or 100% cotton shirt with full length sleeves rolled down shall be worn when working on or near live parts, erected poles, steel towers, or similar structures, manlifts, ladders, and under such other conditions as the employees in charge shall direct. Refer to Rule 118.

h) No employee shall bring any part of his body closer to exposed energized parts or take any conductive object without an approved insulating handle, closer to exposed energized parts, than shown in the following table, unless employee is insulated or guarded or energized part is insulated or guarded.

Alternating Current-Minimum Distances

Voltage Range (Phase-to-Phase) Kilovolts	Minimum Work and clear hot stick distance
Above 300 to 2,000	1 ft.
2 to 15	2 ft. 0 in.
15 to 35	2 ft. 4 in.
35 to 46	2 ft. 6 in.
46 to 72.5	3 ft. 0 in.

i) Employees working on any energized conductors or apparatus or performing switching operations, such as making or breaking power connections, shall wear approved eye protection and shall be safeguarded by means of approved head protection for 600 volts or less. Helmet shall comply with ANSI Z 89-1-1969 Class A or D, for voltage above 600 volts, ANSI Z-89-1-1981 Class B.

702 Flexible Protective Equipment and Rubber Gloves

(Rubber Synthetics, Etc.)

a) Employees shall not touch or work on any exposed energized lines or apparatus except when wearing approved protective equipment approved for the voltage to be contacted. Rubber gloves shall meet the requirement of ANSI, Class 1, Type 1 requirements.

b) When work is to be done on or near energized lines, all energized and grounded conductors or guy wires within reach of any part of the body while working shall be covered with suitable and approved protective equipment, except that part of the conductor on which the employee is to work.

c) When working on energized lines or apparatus, work shall be done from below if possible.

d) In applying flexible protective equipment, employees shall always protect the nearest and lowest wires first, protecting themselves as they progress. In removing rubber protective equipment, the reverse order shall be maintained.

f) Flexible blankets shall not be used on the ground without protecting them from physical damage and moisture by means of a tarpaulin, canvas, or protective mat.

g) Protective equipment shall be put on before entering the working area within which energized lines or apparatus may be reached and shall not be removed until the employee is completely out of reach of this area.

h) Rubber gloves shall be used before entering the "contact area" and shall not be removed until the employee is out of the "contact area".

i) The term "contact area" is defined as any location in or from which any part of an employee's body is within reach of unprotected conductors or equipment energized in excess of 300 volts phase to phase. The term "within reach" includes conductors and equipment which might be touched if the employee slips or falls. It also includes conductors and equipment that might be touched by any material the employee is carrying or handling.

j) Whenever circumstances require an employee to wear rubber gloves, the observer must also wear rubber gloves.

k) When new rubber gloves and blankets are received they shall be tested dielectrically before being put in use.

l) When dielectric tests are made on rubber protective equipment, only test section employees shall be permitted in the testing room.

m) All rubber gloves which are used on energized electrical equipment shall be electrically tested at intervals of one month to four months depending on the extent of use.

n) Rubber blankets, rubber insulator pin hoods and line hose shall be electrically tested at least once each year. These devices shall be inspected by the employee before being used for protection.

o) 12 kV protective equipment shall be tested at least annually.

p) Gloves and blankets shall be marked to indicate compliance with the retest schedule and shall be marked with the date tested.

e) Flexible blankets shall not be used on the ground without protecting them from physical damage and moisture by means of a tarpaulin, canvas, or protective mat.

f) Protective equipment shall be put on before entering the working area within which energized lines or apparatus may be reached and shall not be removed until the employee is completely out of reach of this area.

g) Bare communications conductors shall be treated as energized lines and shall be protected accordingly.

h) Rubber gloves shall be used before entering the "contact area" and shall not be removed until the employee is out of the "contact area".

i) The term "contact area" is defined as any location in or from which any part of an employee's body is within reach of unprotected conductors or equipment energized in excess of 300 volts phase to phase. The term "within reach" includes conductors and equipment which might be touched if the employee slips or falls. It also includes conductors and equipment that might be touched by any material the employee is carrying or handling.

j) Whenever circumstances require an employee to wear rubber gloves, the observer must also wear rubber gloves.

k) When new rubber gloves and blankets are received they shall be tested dielectrically before being put in use.

l) When dielectric tests are made on rubber protective equipment, only one employee shall be permitted in the testing room or if tests are made in a large room used for other purposes, then no one shall be permitted within 10 feet of the equipment or the employee doing the testing.

m) All rubber gloves which are used on energized electrical equipment shall be electrically tested at intervals of one month to four months depending on the extent of use.

n) Rubber blankets, rubber insulator pin hoods and line hose shall be electrically tested at least once each year. These devices shall be inspected by the employee before being used for protection.

o) 12 kV protective equipment shall be tested at least annually.

p) Gloves and blankets shall be marked to indicate compliance with the retest schedule and shall be marked with the date tested.

703 Use and Care of Rubber Gloves

a) When not in use, rubber protective equipment shall be protected from mechanical and chemical damage and shall always be stored in the container provided and nothing else placed therein.

b) To avoid corona and ozone damage, rubber protective equipment shall not be allowed to remain in place on energized lines or apparatus overnight or for more than one eight-hour period, unless approved by the supervisor in charge.

c) Line hose, hoods, blankets, line guards, etc., shall be visually inspected before each job.

d) Flexible protective devices shall be stored in special compartments on trucks and elsewhere where they will not be subjected to damage from tools or other equipment.

e) Qualified employees or those under the continuous supervision of a qualified employee shall work on lines or equipment energized from 0 to 300 volts wearing suitable personnel protective equipment.

f) Only qualified employees shall work on lines energized in excess of 300 volts and shall wear rubber gloves with leather protectors when working on lines or equipment energized at voltages above 300 volts to 7500 volts phase-to-phase.

g) When the use of rubber gloves is required, they shall be put on before the employee comes within reach of unprotected energized circuits or apparatus or those which may become energized and they shall not be removed until the employee is entirely out of contact area of such circuits or apparatus.

h) Rubber gloves with leather protectors shall be worn when:

1. Working on or within falling or reaching distance of any electrical equipment or metal surface (crossarms, crossarm braces or transformer cases) which are not effectively grounded and which may be or may become energized above 300 volts to ground.

2. During wet or stormy weather, working on or within reaching distance of any conductor or equipment which may be or may become energized at any voltage.

3. Required by supervision.

4. Removing lead sheath and sleeves from cables and joints, and opening or cutting cables (until they have been proven to be de-energized at the work location by positive tests).

5. Making voltage tests on cables.

6. Opening and closing manually operated oil circuit breakers.

7. Opening, closing, removing, or replacing hot clamps, fuses, or fuse doors on cutouts except when using an approved switch stick or hot line tool but shall be used when working in wet location.

8. Making tests to determine if lines are de-energized. For applying and removing grounding devices, use insulated sticks.

9. Working on or near series street lighting circuits unless they are disconnected from the source of power and proven to be deenergized.

10. Repairing series fixtures or attachments, the circuit of which is exposed to energized conductors, except where the fixtures are disconnected from the line.

11. Pulling in wires or handling other conducting materials near circuits, apparatus or equipment which is, or may become energized.

12. Working on or near telephone or other circuits which are subject to induced voltages from energized high voltage circuits, unless such circuits to be worked are adequately grounded.

i) When working on energized circuits or apparatus where the voltage between any two conductors is over 7,500 volts, the work shall be done by means of suitable devices. Rubber gloves only shall not be considered to be suitable devices for this voltage.

j) Rubber gloves shall never be worn inside out or without leather protectors. They shall be exchanged at any time they become damaged or the employee to whom they are assigned becomes suspicious of them. Leather protectors or overgloves shall not be worn except when in use over rubber gloves.

k) Rubber gloves shall be inspected for corona cracks or other damage and shall be given air test at least once each day while in use, preferably at the beginning of the work period and at any other time when their condition is in doubt. They shall be checked for each use.

l) Gloves when not in use shall be kept in canvas bags or other approved containers and stored where they will not become damaged from sharp objects or exposed to direct sunlight. They shall never be folded while stored nor shall other objects be placed upon them.

m) Rubber gloves shall be stored in the glove bag with the cuffs down to permit drainage, better ventilation and reduce the possibility of damage.

n) The term "energized lines," as used in Section 700, is defined as any conductor or apparatus energized at above 300 volts nominal phase to phase. Neutral conductors, and all current-carrying parts of series street light fixtures above 300 volts, shall also be considered "energized lines."

o) Employees shall not touch or work on any exposed "energized lines" except when wearing approved lineman's rubber gloves.

p) Line Mechanic rubber gloves shall be worn and rubber protective equipment shall be used when working on open wire communication conductors supported on power poles or structures.

q) When work is to be done on or near "energized lines," all energized conductors, grounded conductors, or guy wires within reach of any part of the body while working shall be covered with rubber protective equipment, except that portion of the conductor or apparatus on which the employee is to work.

704 Working in Elevated Positions

a) Before climbing poles, ladders, scaffolds, or other elevated structures, or riding span wires, messengers or cables or similar equipment, the employees shall first assure themselves that said structure or device is strong enough to safely sustain their weight.

b) Before allowing employees to work on any pole or structure from which supporting conductors or guys are to be removed, or on which the stress is to be changed in any way, the employee in charge shall make sure that the pole or structure will stand the change in stress without falling.

c) The employee shall observe the pole to make certain that the pole is set to proper depth. (Manufacturers usually place their pole brand 10 feet from the butt end of poles 50 feet and under and 14 feet on poles 55 feet and over).

705 Body Belts and Safety Straps

a) Employees shall not work on an erected pole, tower or other elevated structure, including truck mounted ladders and mechanical or hydraulic platform lifts, without first securing themselves with an approved body belt and safety strap or life line.

b) Employees working in aerial basket lifts shall secure themselves with an approved lanyard properly fastened to the attachments provided.

c) Employees shall make sure that the snap hook and "D" ring are properly engaged before the weight of the body is placed on the safety strap. Employees shall never rely on the "click" of the keeper in the strap as an indication that the fastening is secure.

d) When a safety strap is in use, both snap hooks shall not be attached to the same "D" ring.

e) Wire hooks shall not be attached to body belts.

f) Safety straps shall not be used when any portion of the red safety marker strip, in the strap, is exposed.

g) Body belts, safety straps and lanyards shall be inspected by a qualified person each day before use to determine that they are safe. Those found unsafe shall be immediately removed from service.

h) Body belts, safety straps and landyards shall be labeled as meeting Class I requirements contained in ANSI A10-14-1975.

i) Body belt shall be free from exposed rivets on the inside surface of the belt.

706 Hand Lines

a) Hand lines shall be of an approved nominal 1/2-inch material.

b) An approved hand line shall be placed on every structure where line work is being performed on energized conductors or apparatus by a line crew. When a line crew is working directly over energized primary conductors or apparatus, a hand line shall be provided.

c) An approved line having a minimum breaking strength of 2650 lbs., shall be used when lowering an employee from a pole or elevated position, provided the rope is passed over a crossarm or fixed member of the structure and is not directly supported by the hand line sheave.

d) When raising or lowering tools or light weight material, a hand line, or hand line with material bag attached, shall be used.

e) The use of non-conductive hand line sheaves shall be mandatory when working on any structure on which conductors energized 72 kV and below are attached.

f) A rope shall not be overloaded or dragged over rough or sharp objects.

b) Employees working in aerial basket lifts shall secure themselves with an approved lanyard properly fastened to the attachments provided.

c) Employees shall make sure that the snap hook and "D" ring are properly engaged before the weight of the body is placed on the safety strap. Employees shall never rely on the "click" of the keeper in the strap as an indication that the fastening is secure.

d) When a safety strap is in use, both snap hooks shall not be attached to the same "D" ring.

e) Wire hooks shall not be attached to body belts.

f) Safety straps shall not be used when any portion of the red safety marker strip, in the strap, is exposed.

g) Body belts, safety straps and lanyards shall be inspected by a qualified person each day before use to determine that they are safe. Those found unsafe shall be immediately removed from service.

h) Body belts, safety straps and landyards shall be labeled as meeting Class I requirements contained in ANSI A10-14-1975.

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b) An approved hand line shall be placed on every structure where line work is being performed on energized conductors or apparatus by a line crew. When a line crew is working directly over energized primary conductors or apparatus, a hand line shall be provided.

c) An approved line may be used when lowering an employee from a pole or elevated position, provided the rope is passed over a crossarm or fixed member of the structure and is not directly supported by the hand line sheave.

d) When raising or lowering tools or light weight material, a hand line, or hand line with material bag attached, shall be used.

e) The use of non-conductive hand line sheaves shall be mandatory when working on any structure on which conductors energized 72 kV and below are attached.

f) A rope shall not be overloaded or dragged over rough or sharp objects.

g) Short bends over sharp-edged surfaces shall be avoided.

h) Kinks shall be removed before any strain is put on a rope.

i) When not in use, rope shall be dried and stored properly and kept free from mechanical damage and excessive heat and dryness.

j) Rope shall be examined regularly for cuts, worn spots, burns and rot. The rope shall be untwisted at various places and inspected for poor fiber and dry rot.

k) The outward appearance of rope shall not be accepted as proof of quality or strength.

l) The safe loads shall not be exceeded.

707 Testing of Poles

a) When the employee in charge determines that a pole shall be tested (see Rule 704 b), the tests shall be made as follows:

1. Make a close visual inspection for any physical defect which might weaken it.

2. Expose to at least 12 inches below ground and inspect for defects. If set in pavement, test by boring as outlined in sub-paragraph 4 below, except start the drill hole as close to the pavement as possible.

3. Sound test by tapping with a hammer, beginning at the lowest exposed end of the pole (at the bottom of the excavation or top of pavement) and as high upon the pole as can be reached from the ground.

Note: If it is evident that the pole is unsound after any of the steps 1, 2 or 3, further testing is not necessary and the pole shall be adequately supported before climbing.

4. Poles: If after visual inspection and sounding, there is any doubt about the soundness of the pole, bore a 11/16 inch hole in the pole at the bottom of the excavation at a 30 to 40 degree angle. The hole shall be bored at the center line of the pole to within about 2 inches of the opposite side, taking care not to break through. If the soundness of the pole is questionable after the first boring, bore a second hole at right angles to the first. If the pole does not have at least 2 inches of sound wood shell, it shall be adequately supported before climbing. The drill hole shall be plugged with a 3/4 inch treated dowel.

708 Common Neutral System

a) The common neutral conductor shall not be opened at any point except by first installing an approved temporary jumper around the proposed open point. Approved rubber gloves with protectors shall be used during the operation.

b) Common neutrals at the secondary level shall be worked on as conductors or apparatus energized at less than 300 volts, phase to phase, in accordance with Rule 733 such as connecting service drops, etc.

c) The vertical run connecting the common neutral shall be considered as primary and worked as such.

709 Wire Stringing

a) When stringing or removing conductors, the number of employees handling the conductor shall be held to a minimum. Running lines, hold down lines, and/or tag lines shall be used, and left attached, until the conductors are in place and properly secured. It is the duty of the employee in charge to see that such means of protection are adopted as are necessary to make the work safe.

b) When stringing or removing conductors along, or over, streets or highways, the pulling and tensioning equipment shall be provided with red flags on the front and rear. Other precautionary measures, such as flagger, cradles and barriers shall be used as needed.

c) When stringing or removing conductors above or below unattached circuits energized up to 5000 volts, phase to phase, or on poles or towers supporting circuits energized up to 5000 volts, phase to phase, precautions shall be taken to adequately insulate the flagger by means of approved rubber protection equipment or other approved methods. This rule shall not apply where only 0-300 volt service drop conductors are involved.

d) When stringing or removing conductors above or below unattached circuits energized above 5000 volts, phase to phase, or on poles or towers supporting circuits energized above 5000 volts, phase to phase, the conductor shall be pulled over a grounded roller at the first structure away from both the payout and takeup equipment. However, when a running ground is used between such equipment and the first structure, the grounded roller shall be installed on the second structure instead of the first. In addition, a grounded roller shall be installed at each crossing on the first structure beyond the crossing toward the takeup reel.

e) When stringing or removing conductors between circuits covered by Rule 709 c) and 709 d), the governing rule shall be the one applying to the circuit which presents the greatest hazard.

f) When stringing or removing wires crossing over lines or within 10 feet under conductor, energized in excess of 300 volts, suitable guard structure shall be installed at the point of crossing in order to eliminate the possibility of accidental contact, unless provision is made to isolate or insulate the workers or the energized conductors.

g) Wire rope shall never be used for the purpose of stringing or removing wires under conditions specified in 709 a), b), c), and d).

h) Hoists employing a metallic cable or chain shall not be used for pulling and dead-ending energized conductors.

i) Prior to stringing operations, a briefing shall be held setting forth the plan of operation and specifying the type of equipment to be used, grounding devices and procedures to be followed, crossover methods to be employed and the clearance authorization required.

j) Where there is a possibility of the conductor accidentally contacting an energized circuit or receiving a dangerous induced voltage buildup to further protect the employee from the hazard of the conductor, the conductor being installed or removed shall be grounded or provisions made to insulate or isolate the employee.

k) If the existing line is de-energized, proper clearance authorization shall be secured and the line grounded on both sides of the crossover, or, the line being strung or removed shall be considered and worked as energized.

l) Conductors being strung in or removed shall be kept under positive control by the use of adequate tension reels, guard structures, tielines or other means to prevent accidental contact with energized circuits.

m) Adequate grounds shall be placed on all dead end structures, and shall remain intact until jumpers are installed completing the circuit or removed as the last phase of aerial cleanup.

n) De-energized lines or equipment may be restored to service only after the employee in charge has determined that all personnel are clear, personal grounds have been removed, and the appropriate authority has been notified.

o) Prior to stringing parallel to an existing energized transmission line, a competent determination shall be made to ascertain whether dangerous induced voltage buildups will occur, particularly during switching and ground fault conditions. When there is a possibility that such dangerous induced voltage may exist, the provisions of subparagraphs b) through j) shall be followed.

p) When stringing adjacent to energized lines, the tension stringing method or other methods which preclude unintentional contact between the lines being pulled and any employee shall be used.

q) All pulling and tensioning equipment shall be effectively grounded.

r) Precautions shall be taken to protect all employees from any accidental contact between the conductors being installed or removed and any energized conductor.

s) Except for moving type grounds, the grounds shall be placed and removed with a hot stick.

710 Washing of Insulators on Energized Lines

a) When washing insulators on energized lines:

1. Water shall be tested for resistivity by use of an approved water tester at each filling of the water container before use.

2. Water shall have a minimum ohmic resistance per inch cubed, as shown below:

Voltage Range	Minimum Resistance
0 - 50 kV	500
50 - 250 kV	800

Note: As water resistance decreases with increase in temperature it shall be checked occasionally when tank is exposed to the sun.

b) Minimum safe working distances from the nozzle to the energized part being washed are shown in the following table:

Voltage (Phase to Phase)	Working Distance in Feet	
	Nozzle 15/64"	Nozzle 5/16"
4 kV to 12 kV	7	10
13 kV to 23 kV	10	13
24 kV to 70 kV	12	15

c) Minimum nozzle pressure when washing transmission lines shall be maintained at 550 psi but may be reduced to 400 psi when washing distribution lines (less than 50 kV).

d) When using conductive hoses, all equipment used in washing procedure shall be bonded to the metal structure supporting the insulators being washed.